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INTUITIVE SUGGESTION

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SPIRITUAL LAW IN THE NATURAL WORLD:

A METAPHYSICAL AND PSYCHICAL EXPOSITION OF THE OPERATIONS OF THE HOLY SPIRIT AND OTHER AGENCIES.

Crown 8vo, 6s.

LONGMANS, GREEN, AND CO.,
LONDON, NEW YORK AND BOMBAY.

THE ABERDEEN UNIVERSITY PRESS LIMITED.

INTUITIVE SUGGESTION

A NEW THEORY

OF THE EVOLUTION OF MIND

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BY

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AUTHOR OF "SPIRITUAL LAW IN THE NATURAL WORLD," ETC.

"And God said, Let there be light: and there was light"
—GEN. i. 3

7.9.37

ROYAL ASIAT

LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW, LONDON
NEW YORK AND BOMBAY
1901

PREFACE.

A CAREFUL survey of the theory of Evolution shows that there are numerous points in the development of Mind which are at present unexplained; in fact, it seems evident that there are more missing links in the Evolution of Mind than there are in the Evolution of the Body. There is, moreover, a considerable difference of opinion existing among learned Naturalists whether certain faculties could result from Natural Selection at all.

When the late Dr. Romanes and others assumed that the formation of nerve was the starting-point of Mind, they resolved it (Mind) into physical and chemical energy, or, as Herbert Spencer puts it, "into nervous shocks".

But before nerves occur, in the microscopic world even, simulative faculties and functions are met with, and the movements and actions

of some of the minute organisms, according to Romanes himself, "rival the most elaborate non-mental adjustments elsewhere performed by the most highly organised of nervous systems". It is evident, therefore, that the faculties mentioned are not the results of acquired instincts by memory experiences, but are *suggested* to, or rolled into, the organism through channels of internal correspondences with intelligent Force.

It will be shown that all the senses are based upon such internal correspondences, and in this treatise the word *intuitive* has been selected to cover the whole field of action and knowledge usually regarded as non-mental. The word *intuitive* is generally used in reference to a conscious and reasoning being: *Instinct* is associated with animals, and *intuition* with man, but a very little consideration will reveal the fact that *intuition* can with equal reason be applied to the knowledge rolled into an organism as to the knowledge rolled into the brain of a Milton or a Shakespeare. The *Imperial Dictionary* gives,

among others, the following meanings to the word *intuition*: "Perceived by the mind immediately without the intervention of argument or testimony; exhibiting truth to the mind on bare inspection; as intuitive evidence; having the power of discerning truth without reasoning".

Following out these explanations, it is reasonable to assume that if an organism can see without eyes, it has *intuitive sight*. If it can "know" without the cognitive faculties of sense, it has *intuitive knowledge*. If the bees made a cell of mathematical accuracy without the cognitive faculty, it was a case of *intuitive mathematics*.

Should these be fair distinctions—and I think they are—the principle is capable of still wider application, for in the so-called inorganic realm there is *intuitive motion*, as among the heavenly bodies and our own planet; there is *intuitive direction* among the molecules of gases; and, in chemical combination, there is *intuitive knowledge*, *quantitative exactitude*, *and choice of material*.

When the intuitive faculties receive due consideration, it will be found that they constitute the missing factors in the present theories of the Evolution of Mind, and that it is possible to formulate a plan by their aid which shall embrace such subjects as genius, the moral sense, etc., which are now in dispute, and form a homogeneous and complete theory.

The unfolding of *intuitive love* into love by sense in the last chapters may be regarded as a somewhat romantic story; but along whatever lines the higher intelligence and reasoning powers have been reached, it seems evident that "suggestion" has played a very important part in the past history of Man, and is destined, eventually, to be the power which shall transform the Race.

LONDON, 1901.

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INTRODUCTION.

IT is not my intention to make any reference in detail to the evolution of the body of man. The general consensus of opinion now existing shows decisively that the theory of the evolution of the body is most widely accepted, and recent discoveries, like that of Dubois' *Pithecanthropus erectus*, are doing much to fill in the missing links in the chain of evidence.

There are missing links, too, in the theory of the Evolution of the Mind as well as in the Evolution of the Body; and while many authorities are prepared to accept the Evolution of the Mind, generally, along common lines, there are others who cannot reconcile certain faculties and functions as resulting simply from Natural Selection.

Darwin believed that, just as the body of man has been evolved by one continuous process from the germ-plasm upwards, so mind, in complete association, has been similarly evolved.

Haeckel has maintained the same theory, and laboured, diligently, to support his views.

Herbert Spencer, in his *Synthetic Philosophy*, advo-

cated that evolution had all along the line maintained the even tenor of its ways, and stated that mind was no exception to the rule. His conclusion "that mind is, certainly in some cases and probably in all, resolvable into nervous shocks, and that these nervous shocks answer to the waves of molecular motion that traverse nerves and nerve centres" leads us to infer that there must be a very substantial foundation upon which nerves are laid, but he sees no reason to doubt that mind has been evolved without any breaks in the general continuity.

Dr. Romanes advocated a similar theory, and in his *Mental Evolution in Man*, and in other works, he has brought forward strong testimony in its favour. After showing to what extent mental evolution has proceeded in animals, he compares the faculties and functions noted with those found in man, and concludes "that, so far as emotions are concerned, it cannot be said that the facts of animal psychology raise any difficulties against the theory of descent. On the contrary, the emotional life of animals is so strikingly similar to the emotional life of man . . . the similarity ought fairly to be taken as direct evidence of a genetic continuity between them."

Wallace argues, however, that genius, the mathematical faculty and the higher intelligence belonging to the human race, could not be acquired by natural selection.

Mivart maintained that, whilst the body of man had been evolved, his mind was a separate creation. He stated: "For my own part, my conviction grows ever stronger that, though corporeally man is but a sort of ape, his intellectual nature is so distinct that, thus considered, there is more difference between him and the orang than between the latter and the ground beneath its feet. But high as he is raised above the rest of Nature, the very limitations of his reason, considered in the light of the highest ethical aspirations of his being, demand something beyond Nature—a Divine revelation."[1]

Huxley, in one of his latest lectures, stated that the ethical side of man could not be developed by natural selection. He remarked: "The practice of that which is ethically best—what we call goodness or virtue—involves a course of conduct which, in all respects, is opposed to that which leads to success in the cosmic struggle for existence. . . . The thief and the murderer follow nature just as much as the philanthropist. Cosmic evolution may teach us how the good and evil tendencies of man may have come about; but, in itself, it is incompetent to furnish any better reason why what we call good is preferable to what we call evil than we had before."[2]

The eminent French naturalist Quatrefages held

[1] *Nineteenth Century*, 1893, p. 211. [2] *Ibid.*, 1893, p. 205.

that there was considerable likeness amounting to identity between the highest intelligence of the brute creation and man, but beyond this, in the domain of religion and conscience, man was unique and separate.

Since the time of Darwin, what is known as the dynamic or mechanistic theory of life has met with considerable favour, and this theory is now very widely held and advocated. Design and purpose in creation are entirely cast aside by many authorities. It is said that "organisms instead of being hand made and purposive, are machine-built machines, and operated, when built, by forces outside of themselves". What these forces are does not appear to be very manifest, and no hint is given that they are *intelligent* in character. When the origin of a cell is under consideration, and "why it does not remain stationary when maturity is reached, the answer is, that the energy which built it will not leave it alone". This energy is styled "polar energy," and after being provided with this lucid explanation, we are told that those who have attributed the phenomena of sexual union and development "to the activity of polar energy are certainly on the right track".

The trend of the mechanistic theory along the lines just pointed out is to aver that the primary cell and all its successive developments have been modified by forces in the environment, for it is said that there is

no "innate tendency" in "vitalised matter" to "unfold" or anything of that sort, but that an adequate force of such current electricity as operates to form crystals also operates to build a cell in a suitable solution. While, however, there are writers on what might be called the ultra-mechanical theory who ignore function and endowment of the cell with the properties to enfold, yet they find it impossible to dispense, altogether, with the terms function and endowment, hence the consistency of their theory is weakened and impaired. If it is fair to conclude that gravity, chemism, and magnetism are endowments, it is surely fair to assert that all the functions discovered in organisms are endowments also, more or less modified and changed, admittedly, by the environment, but not functions created and furnished by it.[1]

As the question of environment is very important in its bearing upon the evolution of mind as well as the evolution of the body, it will be well to inquire a little more fully into its influence.

Herbert Spencer is an authority on this subject. Whilst recognising the great influence of the environment as a factor in evolution, he points out, notwithstanding, that there are internal relations as well

[1] "If we should suppose that bodies are endowed with gravitation in different degrees, as they are with chemism and magnetism in different degrees, etc." (*The Dynamic Theory*, p. 1042).

as external, and that evolution can only proceed perfectly when the inner relations correspond with the outer, because "the degree of life varies as the degree of correspondence". As to whether Function precedes Structure, or *vice versâ*, he points out that authorities are not agreed; but, just before quoting Huxley's remarks on the lowest organisms, he states: "There is, however, one fact implying that Function must be regarded as taking precedence of Structure".[1]

Drummond regarded the environment as the prime factor in evolution. In his *Ascent of Man* it is said, "The secret of Evolution lies, in short, with the *Environment.* In the Environment, in that in which things live and move and have their being, is found the secret of their being, and especially of their becoming. And what is that in which things live and move and have their being? It is Nature, the world, the cosmos—and something more, some One more, an Infinite Intelligence and an Eternal Will. Everything that lives, lives in virtue of its correspondences with this Environment. Evolution is not to infold from within: it is to infold from without. . . .[2] The supreme factor in all development is Environment. . . .[3] Man, not by any innate tendency to progress in himself, nor by the energies inherent in the protoplasmic cell from which

[1] *Biology*, vol. i., p. 153. [2] *Ascent of Man*, p. 414.
[3] *Ibid.*, p. 415.

he first set out, but by a continuous feeding and reinforcing of the process from without, attains the higher altitudes."[1]

That environment is a factor of considerable importance in evolution is true, especially in the case of animals which possess sufficient sense to take advantage of their surroundings, but environment is scarcely of much moment in the case of the brachiopods and echinoderms, as they have remained stationary during countless ages. Until an animal has reached the point when it understands that it is in correspondence with its environment, and that condition is only reached in the case of man, environment is not the chief factor in evolution, nor is it probably even then.

Drummond, in common with Spencer and others concluded that when man's progenitors parted company with the Simian stock, or from what other stock they parted company, it was the influence of the environment upon them which led to the evolution of reason and the moral sense; and, if we ask how the ancestors of man obtained the knowledge that they had correspondence with their environment, and the power to discriminate between good and evil, all, we are told, entered the animal from without, like the carbonic acid gas enters into the growing plant.

[1] *Ascent of Man*, p. 418.

We know, however, that the oak is not an oak by virtue of its environment, nor did it become an oak because carbonic acid gas, oxygen, nitrogen and the vapour of water entered into the growing plant. The same chemical elements feed the elm and the oak, from whence came their characteristic differences? Drummond saw the difficulty, as will be seen from the following quotation: "There is only one source of everything in the world. They (the social, moral and religious forces) come from the same source as the Carbonic Acid Gas, the Oxygen, the Nitrogen and the Vapour of Water, which from the outer world enter into the growing plant. These also visit the plant in the order in which the capacities for them unfold, and according to the measure in which these capacities can contain them."[1]

Exactly, the capacities are Intuitive, and the inflow of food from *without*, whether material, moral or spiritual, is simply to feed and keep alive and develop capacities which unfold from *within* the organism. Accordingly, evolution must be the unfolding from within, rather than the infolding from without. *If plant food visits* "the plant in the order in which the capacities unfold," it is evident that the "capacity" must be unfolded before the specific plant food can be assimilated. The means for the development,

[1] *Ascent of Man*, p. 419.

of the capacity or faculty are in the environment, doubtless, but the power to develop, and the lines along which that development shall proceed, must be endowed upon the organism before evolution can make progress, and this rule seems to be without exception until self-conscious life is reached. If this is true, then *Correspondence with the Environment* has more to do with Evolution than Environment itself.

To maintain that evolution is the "unfolding from without" is to place a limit upon Immanent Spirit. It is acknowledging that man lives *in* the First Cause without admitting that the First Cause is *in* man.

As capacities unfold, by virtue of new endowment, by Infinite Spirit within the organism, it is enabled to develop these faculties at a quicker or slower rate in accordance with the conditions of the environment.

But the capacity to evolve is not always dependent upon the environment, neither has natural selection nor hereditary acquirement, in such instances, any part in the matter. The great mathematicians, musicians, painters, poets, etc., did not, in the majority of instances, inherit the gifts from their parents. Wallace and Weismann conclude that "talents" could not be developed under the law of natural selection, and as to being the result of the transmission of acquired characters, Wallace remarks: "Weismann then goes on to show . . . that the mathematical, musical, or

artistic faculties often appear suddenly in a family whose other members and ancestors were in no way distinguished; and that even when hereditary in families, the talent often appears at its maximum at the commencement or in the middle of the series, not increasing to the end, as it should do if it depended in any way on the transmission of acquired skill. Gauss was not the son of a mathematician, nor Handel of a musician, nor Titian of a painter, and there is no proof of any special talent in the ancestors of these men of genius, who at once developed the most marvellous pre-eminence in their respective talents."[1]

What Weismann calls talent is in this treatise termed genius. What is "genius"? A faculty which is not common to the race, but makes its appearance, now and again, either as the result of pre-natal maternal influence, or without any apparent reason. Mendelssohn, Mozart, Handel, Haydn, and a few others, evolved music of astonishing excellence. It was not the race which evolved music, it was the musicians. The same is true of poetry. The million may be taken to the most romantic glade, or even into a perfect fairyland, without creating true poetic genius: it is generally admitted to be something which is not evolved by the common mind. What is true of music is also true of poetry. It has not been

[1] *Darwinism*, p. 473.

evolved by the race, but by the poets. What made the Shakespeare and the Milton so distinguished? Genius. In what did the great men in science, in engineering, etc., differ from their contemporaries? In genius. Perhaps the public are getting tired of the word genius, for to-day, when boy-pianists, and juvenile performers in other directions, are met with, they are called "prodigies".

When we consider the great mathematicians—men having strange powers of exactitude in calculation—we are still more puzzled, and to the gifts possessed by Bidder, Gauss, Blyth, Dase, and others, it is difficult to find a name. Perhaps the word prophetic would best explain them. These calculators sought to know the answer to some prodigious problem, they consulted the "oracle" and got the answer, and, strange enough, the answer was exact. There was no uncertainty in the region with which they corresponded. When Agabus saw Paul, he consulted the "oracle," or entered into *intuitive* correspondence with the region of exact knowledge, and the answer he received was, "Paul will be bound a prisoner". Agabus was called a *prophet*, and the great mathematicians and calculators of modern ages had similar endowment.

If we are to believe some of the most learned *savants* of to-day—not in our land, simply, but in every country under the sun—the gift which Agabus

possessed is still to be found, although it is rare enough to be called a supernormal endowment, because it is not common to the race. But these strange endowments are not mentioned and considered because of their strangeness, nor because of their claims to be recognised to-day, but because evidence of their existence is found in the earliest historic records of the past, whether biblical or otherwise. It is said that Elisha had intuitive correspondence with the Unseen, and was enabled to know all the movements of the Syrian Monarch.[1] David had like correspondence, and often "inquired of Jehovah," and received the answer whether he would be victorious over his enemies if he went to battle.[2] Abraham is said to have been a prophet.[3] Of Enoch it is stated that he "walked with God,"[4] and the records of Adam in the Bible point to his having had dominion over every living thing. It may be contended that in this description of genius, miraculous powers should not be associated with it. The only object is to show that genius was known in the earliest historic times, and although objection may be taken to miraculous powers being styled "genius," it will be admitted freely that if a man possessed them he must be a great *genius* compared with the average

[1] 2 Kings vi. 9. [2] 1 Sam. xxiii. 2, etc. [3] Gen. xx. 7.
[4] *Ibid.*, v. 24.

man of his day. It is to the prophetic endowments of these men to which special reference is made now, although it is intended to go a step farther, for the question arises: "Is genius found only among mankind? Is it limited to the human race?" The answer is NO, for the animal kingdom affords very numerous instances of genius. The pigeon is a genius. Thousands of vessels have been wrecked through their captains having lost reckoning, but the pigeon does not wreck its life upon an unknown shore, or travel in a wrong direction. It is a "seer," a "calculator"—not of figures—but of direction. Certainty of direction, or *intuitive direction*, is well known to-day among savage tribes, especially among those which live in the forest. Living in the open and taking his bearings from the rising and setting sun led to the decadence of the genius of intuitive direction, and the substitution of sense observation in its place. Among blind persons the faculty of intuitive direction is somewhat common, but it is generally and wrongly attributed to the greater refinement of their touch and hearing. Those birds which depend upon their sight for direction lose the intuitive capacity. Perhaps intuitive capacity is best developed in the swallow, the pigeon and the vulture, of the birds which fly by day, but the bat is the most perfectly endowed with intuitive direction. The bat

flies about quite as free from colliding when its eyes are removed as when they are perfect.[1] It is intuitive direction which enables the cat to see (?) in the dark. Blind persons develop the faculty of intuitive direction best when all reliance upon touch or stick is abandoned.

The true poet does not grind out his poetry by effort, it rather comes as an inrush or uprush, and the same is true also of the great musicians, for these evolved their music by being guided to their instruments by an impelling force, rather than as the result of human effort and difficulty. It is, therefore, only true in part that poetry has been evolved by the poets, and music by the musicians, for both are alike evolved by *genius*, and the same power which evolved poetry in one person, evolved music, literature, painting, or sculpture, in another. In nearly all cases where there is a genius in any particular direction, that direction was determined by the associations or bent of the child—unless it was pre-natal—and, furthermore, the man or woman endowed supernormally in any one faculty is, in nearly all instances, what is popularly known as a "Jack of all trades," having the power to acquire knowledge easily in most branches, and of fairly excelling in them without much effort.

[1] *Mental Evolution in Animals*, p. 94.

This qualification may rightly be styled "adaptitude for the environment"; and so it is, but it must be noted that it is not simply the faculty to acquire by observation, effort and prolonged practice, it is rather the *certainty* to acquire—the faculty to acquire ready-made.[1]

In simple language, it is certainty of action, a twin sister of *certainty of direction* in the bird, or of *certainty of calculation* in the gifted mathematician. It is not assumed that this certainty of action is continuous

[1] This statement seems bare and unqualified. What has been foreshadowed, however, is generally admitted to be true, *viz.*, that no amount of practice in the ungifted individual will make him as skilful as the gifted. For example, take the case of Roberts, the champion billiard player. No man, unless gifted with the genius of *certainty of action, or of direction*, could, by unceasing practice, attain to his power of certainty. It is a curious fact, but a fact notwithstanding, that spiritual powers, love, for instance, and all supernormal endowments, increase or grow in intensity by use like the muscles of the arm by gymnastic exercise; but in the one case there must be absolute dependence upon the source from whence the genius comes, or upon the endowment itself, whilst in the other case there is entire dependence upon *self*. In other words, there is entire reliance upon powers evolved into the organism—intuitive powers—in the one case, and absolute dependence upon powers already existing in the organism, in the other. The one is independent of reason, the other entirely relies upon it. The one is the pigeon without reason but with *certainty of direction*, the other is man with reason, navigating his own ship and acting as his own pilot.

Weismann states: "Upon this subject I only wish to add that, in my opinion, talents do not appear to depend upon the improvement of any special mental quality by continued practice, but they are the expression, and to a certain extent the bye-product, of the human mind, which is so highly developed in all directions" (*Darwinism*, p. 473).

and perfect in human hands, but only that these are indications—intermittent and spasmodic perhaps—that in the spiritual and Unseen there is *certainty of action*, perfect and complete, and that in the last chapter of the history of man certainty of action will be perfect and continuous, and will not result as the product of *human effort and practice*, but simply by the expression or desire of the human will.

One of the strong evidences quoted to prove that man's body has been evolved from the lower animals, and one of the evidences, by the way, that the progenitors of man were fishes, is the manifestation of the "gill-slits," now and again, upon human necks—uprushes, so to speak, of what once had been. There are evidences, too, in the body, we are told, which indicate less animal and more spiritual developments in the future. The eye is becoming less perfect as a lens, indicating, perhaps, that second sight is to be the perception of the future. The number and size of the teeth are diminishing, and they are far more prone to decay, pointing to a time when mastication will be unnecessary. These are shadows which herald coming events.

In the domain of mind, to which class do prophecy, special faculties, talents or genius of whatever kind belong? Are they the uprushes of vestigial relics of the past? or do they herald coming events? These

gifts or endowments cannot be ignored; they must be either vestigial relics, or the beginnings of future developments. Drummond placed them in the latter class. He said:—

"As there was a stage in the ascent of Man at which the body was laid aside as a finished product, and made to give way to Mind, there may be a stage in the Evolution of Mind when its material achievements —its body—shall be laid aside and give place to a higher form of Mind. Telepathy has already become a word, not a word for thought-reading or muscle-reading, but a scientific word. It means 'the ability of one mind to impress, or to be impressed by another mind otherwise than through the recognised channels of sense'. . . . However little we know of it, however remote we are from it, whether it ever be realised or not, telepathy is theoretically the next stage in the Evolution of Language."[1]

Telepathy is the coming event, the next development. What is telepathy? A new name for an old endowment. Telepathy is a vestigial relic, it is the nearly lost faculty of suggestion by sense, a renewal of correspondence with an old endowment, else all the biblical records are fables, and the history of Jesus of Nazareth is a myth. Elisha was a telepathist, and as far as telepathy has any real meaning, all the prophets

[1] *Ascent of Man*, p. 234.

and seers were telepathists. If the records of the past are of any moment, and the conclusions of modern psychic science of any weight, there is a realm within the world of matter, and in closest touch with it, wherein all knowledge is stored—knowledge of the future as well as of the past—knowledge that is perfect, accurate and reliable. It is the door of correspondence with this region which wants opening, and the removal of rust from its unused hinges is the next development.

In an attempt to define the road along which Mind has been evolved, it is certain that the question whether telepathy, genius or special talents are not vestigial relics must be determined, and in the following pages due consideration will be given to it.

With regard to the moral sense, and the ethical faculties generally, it seems that Huxley and those who think as he did have much on their side, but the lines along which these were evolved are different in the following pages, leaving it possible for these faculties to be evolved without any break in the general continuity. Under the circumstances, therefore, it is not necessary to make further reference at this stage either to the moral or to the religious sense, except simply to point out, as already done, that some authorities state they could not be evolved by natural selection.

Besides the questions relating to genius and the

moral sense, there is another factor which seems to be of far greater importance, and yet is almost entirely ignored and set aside. It is the relationship between the adaptive movements and actions of the lowest organisms which are nerveless, and the mental movements and actions of the higher animals. It is generally regarded that mind in animals had no existence before a nerve was formed, and that the beginning of nerves was the beginning of mind. But many of the lowest organisms perform most astonishing adaptive acts although they have neither nerve nor mental process whatever, whilst others undergoing their first experiences in nerve development are eminently stupid in comparison. How are these facts to be explained? Haeckel said: "We meet with the weighty fact that sense-function is possible without sense organs, without nerves". Romanes was eminently puzzled by the records of numerous experiments and observations upon the lowest organisms, which were so remarkable that he was not able to understand their meaning. Having given a definition of *Mind*, which placed it so high in the zoological scale as to be far removed from the lower organisms, he felt that, however wonderful their actions were, there was no mind involved in them, so they were, consequently, disregarded in his theory of the evolution of mind, and, indeed, abandoned as

hopelessly inexplicable. Romanes did not dispute the facts about the lowest organisms, and it was not their strangeness which made him discard them, it was the fact that the organisms had neither nervous system nor "observable organs of any kind".

Consequently, the actions of the lowest organisms are described as non-mental—in short, there is no mind involved. Still these *intuitive faculties* found among the lowest organisms are the very foundation upon which nerves and mind are built—the very bones and sinews upon which nerves are afterwards laid—and it is certain that any theory dealing with the Evolution of Mind is not complete which does not give due prominence to the *intuitive faculties* as well as to *genius* and the *moral sense.*

In the chapters following, an attempt is made to account for all these, without in any way interfering with the general course of natural selection, or heredity.

CHAPTER I.

INTUITIVE FUNCTIONS IN INORGANIC MATTER.

Intuitive Suggestion.—It is almost a truism to say that every unbiassed thinking man must conclude there is a First Cause of all the phenomena manifested by matter. Herbert Spencer showed, after elaborate reasoning, that there is a First Cause, Absolute, and Omnipresent, and it is best to premise at once that the First Cause is Intelligent. Spencer said: "The Power universally manifest to us through phenomena, alike in the surrounding world and in ourselves,—the Power 'in which we live and move and have our being'—is, and must ever remain, Inscrutable: yet the existence of this Inscrutable Power is the most certain of all truths".

This "Inscrutable Power" is most widely known as the Creator. The Creator is not only the First Cause of all the matter which is manifest to our senses in this world, but is the First Cause also of the "ether," and all the forces which act in or upon matter, and which keep it in the condition it manifests year by year.

Astronomy teaches us that masses of matter move, and that this motion is not erratic or chance-like, but perfect and regular and continuous. There is perfect continuity of motion in the heavenly bodies. It is found also that the great forces common to the matter of this planet act always in an unvarying manner. The lines of action of each force was termed the law of that force. The one thing common to each law was *continuity*, hence "there is one Law for all the laws," and this has been styled the "Law of Continuity".

But why do the great forces in Nature act in a continuous and unchanging manner? The only answer which can be given is that the First Cause "suggested" that the atoms and molecules and masses of matter should act accordingly. If it is conjectured that the First Cause at the outset produced or created atoms of matter in a highly tenuous etherial form, and these were the only things created, it is evident there was neither environment, nor forces in the environment[1] to act upon the atoms of matter or to bring about any functional changes in them.

If after atoms of matter were formed they were found, subsequently, to repel each other and execute

[1] The First Cause is not the environment, nor the forces in the environment. The First Cause is the Author of the forces in the environment, and is immanent in the environment by virtue of Omnipresence, but not of it.

certain movements, then it is evident that the First Cause must have "suggested" that the atoms should possess such functions before they could act accordingly. If the next step in the evolution of a planet was the liquefaction of a portion of the gaseous matter brought about through the combination of certain atoms to form molecules, then this could only result because the First Cause "suggested" that the atoms should be endowed with the "affinity" to combine. If the next step in the evolution was the solidification of a portion of the liquid matter to form the nucleus of the crust of the planet, and the solid mass was crystalline in character, then the forms which the crystals assumed could only result from the "suggestion" of the First Cause. Other functions would have been added in the progress of evolution, such as "gravity" to keep the masses of matter together—"cohesion" to consolidate the molecules and masses —"temperature" to regulate liquefaction and solidification, etc. The environment could not give rise to these Forces, they must have been originated directly by the First Cause.

It is very necessary to note this point and give it due weight, because the question is often raised whether Function precedes Structure in the realm of organised matter. In tracing out the various functions common to inorganic matter, it will become manifest that

nearly every one which is met with in the organic realm was previously employed in the world of so-called dead matter, and if this is so, Function must precede Structure in the domain of organised matter, because when matter is traced to its ultimate atom, the First Cause must precede that atom. Having created the atoms, the First Cause "suggested" the functions with which they should be endowed. This is what is termed "Intuitive Suggestion" in these pages, and as the primary functions were all formed by the First Cause, these may be regarded as the product of "Primary Intuitive Suggestion". The latter term will not be used frequently, and is referred to here because it will be mentioned presently that "Intuitive Suggestion" occurs as a function in men and animals, and when it is exercised by them it must be "Secondary Intuitive Suggestion".

The atoms of matter have no innate functions, but act according to the suggestion of the First Cause. When the temperature of gaseous matter fell, primarily, to the point of liquefaction, the First Cause suggested that certain changes should occur; this was the suggestion of a *new* function, not necessarily then and there determined by the First Cause, for such function might have long been pre-determined. The molecules of matter in becoming liquid ceased to act as they did in the gaseous state, but did not lose the

functions previously assigned to them. They were still under "suggestion" to act as before, only the action was *deferred* until they should again assume the gaseous form through a rise of temperature, or reduced pressure. Solid matter is, consequently, under "deferred suggestion" in reference to the liquid and gaseous properties which are manifested according to the state the matter assumes.[1]

Intuitive Motion.—It has been noted, already, that there is motion, perfect, regular and continuous, among the heavenly bodies, and as these are regarded as inert or dead matter, then such motion must be *intuitive.* That motion is as common to the inorganic as to the organic world is too obvious to need demonstration; but even with masses of matter it is difficult to determine to what extent, if to any, the motion is simply mechanical. As there is a mechanical appearance about the movements of the heavenly bodies when superficially observed, not more than *intuitively directed motion* will be claimed for them in this respect.

Intelligent Motion Intuitively Directed.—When the molecules of gases are considered, and the very in-

[1] Those acquainted with hypnotic influence will readily understand what is meant by "deferred suggestion". For instance, to a person under hypnotic influence or hypnosis, in winter time it is suggested that he shall bathe in a certain river on a certain day next spring. This is a deferred suggestion. Ice in winter is in like manner under deferred suggestion to become *liquid* in spring temperature.

tricate and wonderful movements which they execute are elucidated, then it becomes certain that the motion is not mechanical, but intelligently directed. The molecules of gases must have knowledge of position, or else be moved by Intelligent Force.

The mechanistic or dynamic theory assumes that the molecules of gases are moved by *heat.* Heat is *one* of the forces which move the molecules, but these do not conform to the force of gravity, as they diffuse in every direction. Furthermore, if a number of molecules of different gases are introduced into a closed vessel, they will intermix with a velocity inversely as the square root of their densities until the molecules of each gas set themselves equidistant from each other, and then will continue to intermix yet always maintaining relatively equidistant positions. Let it be supposed that alongside the closed vessel mentioned above there was another connected with it by a tap, and that in this second vessel there were other gases different in kind from what were in vessel No. 1. If the tap between the two vessels is opened, what happens? In less than a second each molecule in either vessel *perceives* that its position of equilibrium has been altered, and at once sets itself to discover the equidistant sphere of its activity. The molecules of each individual gas act as if there were no molecules of other gases in the space allotted to

them for movement, and as quickly as their velocity of diffusion will allow, set themselves in relatively equidistant positions.

To sum up the results of observation with regard to the molecules of gases, it is noted, first, that they *move*. Secondly, that they *perceive* when an opening is afforded to new spaces. Thirdly, they have *knowledge of position*, as when relative equidistance has been attained, whether the gas is light or heavy, such relative equidistance is maintained.

The magnetic needle also appears to have intuitive knowledge of position, but the movements of the molecules of gases are far more wonderful and marvellously intricate, and it may be affirmed without fear of disproof that there are no adaptive movements in organised matter or life which are more perfect or better suited to an end or purpose.

Function, Environment and Correspondence.—The movements of the molecules of gases which have been considered afford a very concise proof that Function is Intuitive, and is not produced by the environment. When a block of marble or other solid is subjected to the varying heat of the atmosphere, its molecules move asunder, though almost imperceptibly, and were it not for the endowments of function in the molecules of gases, they would simply expand in accordance with the degree of heat,

and lie in strata the depth of which was regulated by the greater density.

Whilst Function is regarded as preceding Structure in the inorganic as well as the organic world, it is not assumed that the molecules *know* or are at all conscious, but, simply, that they have intuitive correspondence with the omnipresent First Cause,—with Infinite Spirit resident in the molecule. It is not the environment, therefore, which is the chief factor in evolution, it is the *depth*, so to speak, of the correspondence which occurs with Infinite Spirit within the world of matter. Referring again to *intuitive motion*, simple motion may be regarded as corresponding only just below the outer crust of matter; *directed motion*, a little lower; and *intelligently directed motion*, lower still; whilst the *genius of the prophet* corresponds almost directly with the First Cause—with Infinite Spirit. Regarding Infinite Spirit as the very inside—the very heart of matter,—then around Infinite Spirit is a region where all knowledge is stored. Next to that, and in closest touch with it, is the region where all power is found. Near this region is the location of the most tenuous forces connected with planetary matter, such as the so-called ether, and all these are invisible regions filling the whole of matter and yet distinct from it. Verily matter is a mystery, a marvel, and a miracle.

Intuitive Affinity or Desire.—When the atoms of incandescent matter cooled somewhat, the first function with which they were endowed, apparently, was the power to unite together. Two, three, or more atoms of the same gas thus formed bonds of union, and the combinations of atoms so united are known as molecules. Then this power to unite was further extended to the molecules of various gases, with the result that they combined together to form chemical compounds. This function to combine is known as *affinity*, and it is a strong power when the atoms are in close proximity. This *affinity*, however, is not confined to atoms and molecules, as it belongs to masses of matter also. Gravity is termed a force, but it is really only the affinity of mass for mass. One body attracts another with a force which varies inversely as the square of the distance. Gases of an explosive nature when rarefied considerably have their combining affinities greatly reduced. Dr. Carus says: "Gravity is not outside of the stone pulling or pushing it, it is in the stone itself, it is an inseparable part of it, a quality being identical with its mass. Accordingly the falling stone is not acted upon, it is self-acting." [1]

Cohesion is another form of affinity. The First Cause suggested that matter should have the desire or

[1] *Soul of Man*, p. 55.

affinity to combine, and atoms, molecules and masses combine accordingly. Here then, at the first beginnings of matter, the intuitive function, desire, is found, the progenitor, so to speak, of all the desires, of which love is the highest in the realm of organised matter.

Intuitive Energy.—This results in consequence of the affinity to combine, and the force which accompanies that combination. When any two gases combine chemically, the force of the *affinity* gives rise to considerable energy, which is manifested either as heat or electricity. Some compounds, manufactured and not the result of organised matter, have considerable force stored up in them, and these give up that force or energy when the compounds are dissociated. Iodide of nitrogen is such a compound, and if touched with a feather explodes violently. When water is converted into steam, it is said that the latter takes up a considerable store of energy which it gives up again when it is condensed to water; and water, in freezing, parts with much energy as heat, which is regarded as stored up or rendered latent, but this is not the correct explanation, there is nothing stored up, it is "*deferred suggestion*".

Intuitive Mathematics.—The force which accompanies affinity is very remarkable, but the mathematical exactitude with which all the elements combine to form compounds is much more wonderful. Here, at

this early period in the history of the world, it is manifest that twice two are four, and that twice two are *always* four. When oxygen combines with hydrogen to form water, it only combines in a certain proportion. It is the same with all the elements, and in the formation of definite compounds they always behave alike, and the combining proportions are exact and unalterable. One is inclined to ask the question: "Who determined the combining weights of the elements, and who is it that manipulates the scales with such marvellous nicety and precision?" The only answer is, that the First Cause has placed all these atoms, etc., in correspondence with the region of exact figures and weights, and *suggested* that the results which occur shall continue to appear as the circumstances allow. The immense importance of this correspondence with the region of exact figures will be pointed out in the next chapter, when the intuitive functions in organised matter are under consideration.

Intuitive Knowledge.—When referring to intelligent motion, it was pointed out that in gaseous diffusion the molecules must have knowledge of position, and it was further mentioned that this knowledge was not endowed upon the molecules in the sense that they know, or are cognisant, but only that they are in correspondence with the region of all knowledge, and

are guided by the "suggestion" of the First Cause. A knowledge of pressure and temperature must, in the same sense, be possessed by all bodies. Take the case of water, it must *know*, intuitively, when the temperature of 32° F. is reached in order that ice shall be formed. Inorganic matter is full of this intuitive knowledge, which will appear all the more remarkable when it is regarded from the standpoint of the human mind.

Intuitive Choice.—It is generally assumed that the supremacy of man's knowledge over that of the animal creation consists chiefly in the exercise of choice, and choice actions are, consequently, indications of mind in its highest sense. Like all other functions, however, choice has an intuitive stage, and is found in inorganic matter. The behaviour of certain liquids towards each other is peculiar,—why some should form an intimate mixture, whilst others should repulse each other, is inexplicable except upon the assumption that inorganic compounds have choice. Alcohol will mix with oil and with water, but water will not mix with oil. When chemical compounds in solution are concerned, the function of choice is seen, in type at any rate, to characterise the reactions which occur. It is possible to have half a dozen soluble sulphates present in the same water, and for all of these to remain in solution, but the moment a salt

of lead or of barium is added, the sulphuric acid shows a preference, abandoning all the bases with which it had combined previously, and at once entering into combination with the lead or barium. All other acids and bases exhibit preference—choosing certain with which to combine—but it rarely happens that two acids or two bases have like combining properties, as Nature in this, as in all other particulars, is so diversified. To say that the force of affinity or of chemical combination accounts for these reactions is no explanation of the circumstances, because in the choice actions of mind the greatest force of will is employed.

Intuitive choice certainly appears to be a function of inorganic matter, although it is not assumed for a moment that chemical elements choose for themselves the other elements they shall combine with, but only that they are in correspondence with the Unseen where choice resides.

Intuitive Memory.—It seems strange, at first thought, to seek for indications of memory in the inorganic world. It must be mentioned, however, that inorganic forces are not credited with having memory like organised matter, but only of being in correspondence with the region where the Law of Continuity originated. But when memory, either intuitive or by nerve, is analysed, it is found to have a very simple basis. It

is only the power, force or function to repeat what was done before. It has been shown before that all the great forces are permanent, and that they repeat themselves untiringly,—they have therefore *intuitive memory*. Intuitive memory is simply the Law of Continuity in an endowment. The First Cause suggested that the earth should travel round the sun every year, and that it should *always* perform its movements in the same period. Having finished one rotation, it, so to speak, remembers its previous travels and goes on again. Intuitive memory may be said to never forget. The only difference between intuitive and nerve memory is that the former is the Law of Continuity in any force or endowment, whilst the latter is the Law of Continuity in nerve irritation or vibration.

Intuitive Feeling.—In the sense that there is continuity in Nature as a whole, and on the lines that organised matter is evolved out of inorganic material, it is evident that just as motion, memory, etc., must have a beginning, their elements, so to speak, must have been present in the inorganic world; not, necessarily, in inorganic matter, but in the Unseen pervading it. Dr. Carus says: "The spontaneous rise of organised life from the 'All-life' of Nature cannot be contested, unless indeed we wish to lose ourselves in interminable contradictions, or in incom-

prehensible wonder-theories concerning supernatural powers. In view of the fact that we must grant even to inorganic nature a certain kind of life, manifested in spontaneous self-motion, the question has been mooted, whether a piece of coal that burns away, and a stone that falls to the earth, are not endowed with a kind of feeling, that is, whether in such substances actually there does not take place something that, on a miniature scale, might correspond to that which in ourselves we perceive as feeling. The question is perfectly legitimate, and, perhaps, ought to be answered in the affirmative. The non-organised substances must, in fact, possess all the conditions of organised life, and consequently those of feeling also. Still, in admitting this, we ought to bear in mind that the mere conditions of feeling are not as yet feeling itself, even as mere friction does not as yet constitute electricity."[1]

When iron is heated, like the metals on the railway by the sun, the molecules of the iron set themselves at a certain distance, and the iron is said to expand. Is it feeling in the intuitive stage which gives rise to the molecular movements and rearrangements? When the magnetic needle turns to the north again after its direction has been changed, is it *intuitive feeling* which guides it? So far as can be judged

[1] *Soul of Man*, pp. 60-1.

the intuitive direction of birds and animals is manifested as feeling,—is this a higher form of the intuitive stage? Is the repellant action of plus molecules upon plus molecules, and the attraction of minus for plus molecules, primitive forms of *intuitive feeling?* Some compounds combine with great energy, and much heat is evolved in consequence. Is this the *intuitive feeling* stage of the somewhat similar result which occurs in the case of the athlete who puts forth much physical effort, and *feels* very hot as the result? That these processes have something in common is evident, but it is very difficult to say what constitutes *primary intuitive feeling* in the inorganic world.

CHAPTER II.

INTUITIVE FUNCTIONS IN ORGANISED MATTER, OR LIFE.

What is Life?—The answer to this question, according to Sir William Hamilton, is very simple and concise: "Life is energy, and conscious energy is conscious life". The dynamic or mechanistic theory explains life as physico-chemical energy. From these definitions it appears that life is energy, and that the nature of the energy is physico-chemical.

But physico-chemical energy is one of the chief characteristics of so-called dead matter—the inorganic world. The conclusion is, therefore, that if life is physico-chemical energy, then all Nature is alive—it must be so. Not much objection will be raised to this statement to-day, because all naturalists conclude there is life in Nature although Nature may not be regarded as all alive. Dr. Carus says: "Nature is not dead, it is alive; it bears in its bosom the germs of life, and will develop them in the course of the natural process of evolution".[1] Alexander says:

[1] *Soul of Man*, p. 386.

"There appears no reason why the process of the development of organic life from the mineral kingdom may not be going on to-day".[1] Herbert Spencer states: "The separation between Biology and Geology once seemed impassable; and to many seems so now. But every day brings new reasons for believing that the one group of phenomena has grown out of the other. Organisms are highly differentiated portions of the matter forming the earth's crust and its gaseous envelope; and their differentiation from the rest has arisen, like other differentiations, by degrees. The chasm between the inorganic and the organic is being filled up. On the one hand, some four or five thousand compounds, once regarded as exclusively organic, have now been produced artificially from inorganic matter; and chemists do not doubt their ability so to produce the highest forms of organic matter. On the other hand, the microscope has traced down organisms to simpler and simpler forms until, in the *Protogenes* of Professor Haeckel, there has been reached a type distinguishable from a fragment of albumen only by its finely granular character."[2]

The conclusion to be drawn from these statements, is, that life has come out of the inorganic world, and it is somewhat difficult to imagine that life could be

[1] *Dynamic Theory of Life*, p. 253. [2] *Psychology*, vol. i., p. 137.

evolved from the inorganic world if it did not already exist there. It is not assumed that life was innate in inorganic matter, but that new functions were added to inorganic matter, and new correspondences with the Unseen, where "All-life" resides.

Life is, therefore, more than physico-chemical energy—it is this plus the new functions and correspondences—the hunger, the growth, the reproduction, the sensation, the awareness, etc.; and, whilst physico-chemical energy is the chief motive power, this is of little value unless the various doors are open through which correspondence can be obtained with the regions from whence function originates.

Suggestion.—Suggestion and *intuitive suggestion* must be regarded as the beginning of life, just as the suggestion of the First Cause was the beginning of matter. The First Cause must have added a new or modified function to chemical combination, etc., before life could be said to begin in the sense in which it is usually regarded. Carbon had combined with other elements before life appeared, so had hydrogen, oxygen and nitrogen, and physico-chemical energy was already common to the inorganic world. It is not easy to define the new function which was added to start life. It began without any break or jump, and seems to have been evolved by imperceptible stages. It did not begin with protoplasm,

it began with atoms and molecules. If hunger is regarded as the first affinity or desire in life, many authorities view this simply as unsatisfied chemism, and growth and form are not, primarily, the functions of organised matter, as they are foreshadowed in the crystallisation of inorganic compounds. Still, however, hunger, growth, form, and especially reproduction, as they occur in organised matter, are functions which are modified, if not different in character from those found in the inorganic realm, and these could never have arisen out of it, had not the First Cause suggested that new Functions should be added and the old adapted to the new requirements. In a sense, therefore, life did not come out of inorganic matter, it came out of the First Cause, and was added to the functions already existing in inorganic matter by the suggestion of the First Cause.

Intuitive Motion.—It was mentioned before that motion is as common in the inorganic as it is in organised matter. There are infinite movements over which heat cannot exercise control, and which cannot be explained by the kinetic theory, and these are included under *intuitive motion*, because they are not due to forces which are commonly known as physico-chemical. When motion in organised life is considered, it is rarely regarded in any sense other than the expression of physico-chemical forces set free at the

expense of certain molecules in the organism itself. In short, all the movements in organised matter are usually accounted for as energy supplied by the organism at the expense of its own substance.

Is there any *intuitive motion* in organised matter? Have organisms correspondence with the region of intuitive motion, and do they derive force for movement other than that furnished by their own substance? The answer is yes. It is admitted that the minute microscopic bacteria are difficult of observation, but these have motion which cannot be explained by the physico-chemical theory, whilst the locomotion of the *Polycistids* seems to show conclusively that, just as the forces of the intuitive faculties come from the Unseen, and are not generally regarded as terrestrial—although undoubtedly natural—so there is a psychic force, the character of which is unknown to us as yet, capable of moving matter without the aid of physico-chemical energy. M. Binet has devoted much attention to this subject, and he concludes that among the lowest organisms there is motion other than physico-chemical. He says: "It is well known that any number of discussions have been raised as to the manner in which the pedicel on which the Vorticellæ are mounted contracts. Still more obscure is the oscillatory movement of the Bacteria. These small beings are very mobile when

they find themselves in a liquid; they frequently exhibit a movement of oscillation which sometimes carries them forward, sometimes backwards. An attempt has been made to explain these movements by postulating the presence of organs of locomotion, extremely slender filaments planted at one of the extremities of the Bacteria like small rods; but the existence of these organs has not been absolutely proved. Even more obscure is the movement observed in certain Gregarines. It would seem that in the case of these animals, which are often of considerable size, one ought to be able to understand the principle of their movements much more easily than in the case of such small beings as the Bacteria; but this is not the case. The Polycistids have a very peculiar manner of moving; the motion is one of perfect translation, uniform and rectilinear; the animal seems to slide all of a piece over the object-plate; it can go to the right, to the left, stay its motion and resume it again; it is free in directing its movements. Now, during this movement nothing can be seen to take place in the body from within or without. An analogous phenomenon is to be observed in the Diatomes. Some scientists have wished to explain the mysterious motion by translation executed by the Gregarines as being due to an imperceptible undulation of the sarcode; but if there were any undulations whatever,

one ought to observe a correlative movement in the granules inside; now this is something that is never seen. Thus there still exists a great deal of obscurity concerning the principles determining motion among the Proto-organisms. The theories based upon muscular contraction that have been propounded from observing higher animals, are by no means sufficient to explain the phenomena of motility among certain Protozoa and Protophytes."[1]

It is difficult to point out where intuitive motion is first manifest in organised matter, but, in its simplicity, it is best seen at the very beginnings of life, and its intuitive character will be less questioned when notice is taken presently of motion intelligently directed, or *direction by intuition.* Careful notice of the movements of birds must lead the observer to conclude that the poising of the eagle, the hawk, and other birds, is not, simply, the result of dexterity in wing action, or due to lightness of body, but to an intuitive motion which overcomes the force of gravity like the intuitive motion in gaseous diffusion. The gliding action of heavy birds, and the ease with which they alight upon thin twigs, point to intuitive motion, which explains all these phenomena better than suggestions of air or gas in their quills and glands,—very questionable advantages indeed.

[1] *Psychic Life of Micro-organisms*, pp. 18-20.

It is when intuitive motion—or intuitive energy, for they are so closely related as to be inseparable—in its relationship to man is considered that the question becomes interesting, and it is here, too, that the arena of debate affords the most exciting discussion. It is said in the Bible that when Elijah was removed from earth, the school of the prophets concluded that he had been "spirited" away;[1] and it is recorded of Philip the Evangelist, after preaching to the Ethiopean Eunuch, that the Spirit of the Lord caught away Philip, and the Eunuch saw him no more. . . . But Philip was found at Azotus."[2] This remarkable *intuitive motion* would meet with far less credence than it does to-day were it not for the persistent repetition of so-called occult phenomena—of motion other than can be explained as physico-chemical. Men and women have been suspended in air without visible support. This latter phenomenon is called *levitation.* With reference to such movements Professor Crookes, F.R.S., says: "Such movements . . . do prove to my mind the operation of that 'new force' in whose existence I still firmly believe".[3]

Intuitive Motion Intelligently Directed.—For brevity-sake this will be called in sequel, *intuitive direction*, and it is met with at the early development of

[1] 2 Kings ii. 16. [2] Acts viii. 39, 40.
[3] *Proc. Soc. Psychical Research*, vol. vi., p. 99.

organised matter. The higher the ascent in the scale of life the more apparent it becomes that the *energy* of movement is physico-chemical; hence it is that when an organism is intuitively directed, it most frequently happens that the movement itself is due to ordinary physico-chemical energy. It is admitted, too, that physico-chemical energy is the motive power generally though not universally employed, and this is especially the case where, as in the lowest stage of organised matter, the motion is apparently mechanical and aimless. A little higher in the scale, however, organisms are found in great numbers which exhibit quick movement; but it is astonishing to notice that they do not collide with other organisms. They are *intuitively directed.* Many species feed upon specific spores and are intuitively directed to their food.

Engelmann describes how he observed one of the *infusoria* come across a free-swarming *vorticella.* They did not collide, but a most active chase in close proximity resulted for several seconds, until, at last, the *vorticella* took a sudden turn, and thus eluded the infusorium which darted on straight ahead. Some of the *rotifera* move not only with great rapidity but perform most curious figures, yet they swim about and avoid all obstacles as well as if they had both eyes to see and the clearest of vision.

Dr. Burdon Sanderson in his address to the British Association at Nottingham, 1893, said: "Just as, for example, the dogfish is attracted by food which it cannot see, so the plasmodium of Badhamia becomes aware, as if it smelled it, of the presence of its food—a particular kind of fungus. I have no diagram to explain this, but will ask you to imagine an expansion of living material, quite structureless, spreading itself along a wet surface; that this expansion of transparent material is bounded by an irregular coast-line; and that somewhere near the coast there has been placed a fragment of the material on which the Badhamia feeds. The presence of this bit of Stereum produces an excitement at the part of the plasmodium next to it. Towards this centre of activity streams of living material converge. Soon the afflux leads to an outgrowth of the plasmodium, which in a few minutes advances towards the desired fragment, envelopes and incorporates it." This is clearly a case of *intuitive direction* in a structureless organism.

Mr. H. J. Carter, in the *Annals of Natural History* refers to the *Æthalium* which remains at rest in water in a watch-glass, but if the watch-glass is placed over the previous habitat of the organism—chips of wood and sawdust—it will make its way over the watch-glass and get to the sawdust. He also mentions most curious and equally remarkable movements in

food discovery by the *Actinophrys*. All these and many similar instances which might be recorded show conclusively that *intuitive direction* is found among the lowest organisms, and, probably, most generally among those which consist of only one cell.

In the minute organisms mentioned there is not only *intuitive direction*, but there is *intelligence* in it, and it may be styled *exact direction*, because it is perfect. In chemical combination it was noted that there were *exact quantities* involved, here there is *exact direction*, and direction, too, associated with an aim or purpose. The latter conclusion is better exemplified, perhaps, by the *Didinium nasutum* than by any of the organisms previously named. This infusorium is armed with barbs or arrows called trichocysts, which it casts against its victims from a distance. It selects a certain infusorium for its prey, letting others pass unmolested, whilst against its choice victim (*Paramœcium Aurelia*) it always hurls its darts in great numbers. The *Didinium* has no sense organs, and there are no nerves concerned, but *exact direction* and *certainty of direction* are observed ; and it will be seen that these, though so low in the scale of life, are the progenitors of the pigeon so far as its sense of direction is concerned ; or, to be more explicit, the *intuitive direction* of the higher animals and of the forest savage is a *vestigial relic* from the lowest forms of life.

Ascending to higher altitudes, *intuitive direction* may be regarded as the chief faculty of animals which have no sight organs. The dogfish has no eyes, and must have other means of discovering its food. Some authorities think it can smell food with marvellous nicety. The absurdity of such a conclusion ought to be self-evident, and this fish must not only have *intuitive knowledge* that food is near, but it must have *intuitive direction* to enable it to find that food.

The *bat* is, perhaps, the most remarkable of all *intuitively directed* animals, being able to steer its course under the most adverse conditions after its eyes are removed. Various explanations have been attempted to show that the bat is an extraordinary expert, but all such attempts remove nothing of the marvel, while they savour much of the ridiculous. The same Intelligent Force directing the molecules of air directs the bat. Cats and dogs and other animals which possess the greatest intelligence have intuitive direction as a strong faculty, and if this were removed from their nature it is very probable that they would be then as remarkable for their stupidity as they are now for their quickness of perception. It is evident that intuitive direction must be a faculty common to all animals if they have been evolved from a common ancestor, but it is not difficult to see that after the cognitive faculties

were formed, observation would gradually supplant the intuitive faculty, and intuitive direction would thus become rare among men living in the open country. It is *desire* which brings this intuitive faculty into play—it may be intuitive desire, or affinity even—and it is desire which is the prime motor of endowment all along the line. In the lowest organisms *intuitive direction* is a natural endowment, but it is only an endowment in one particular perhaps. It may be given only to cause the organisms not to collide with each other, or with objects in their path, obtaining food being, apparently, a chance operation, though fairly certain because of the quick movement which is rendered possible. Higher in the scale of life there is *intuitive direction* to certain foods, the specific nutriment required. Then there is *intuitive direction* for the purpose of fecundation. Ascending, there are the so-called homing instincts, or *intuitive direction* to nest, and den, and home. Before reaching this altitude the senses were formed, and desires of many kinds gave rise to intelligent response. When spring comes round the swallow feels Nature's indication of the pairing season, and the desires which follow arouse *intuitive direction*, and the birds fly towards their new home. In the dog which has roamed to a distance and is usually fed at home, hunger will arouse *intuitive direction*, and

the dog will trot home without consulting any landmarks.

Function, Environment and Correspondence.—It was mentioned in the previous chapter that Function is intuitive, and it is evident that *intuitive direction*, and, as we shall see presently, the intuitive faculties, generally, afford the strongest proof that the environment is not the chief factor in evolution, and that Function must precede Structure. Although it is doubtless true that the intuitive faculties are as natural as the physico-chemical, it will not alter the fact that the Environment is not the chief factor in Evolution, it will only show that there was a correspondence deeper than was hitherto believed.

Intuitive Desire.—It has been noted how intuitive desire, as affinity, is the main link in the chain of inorganic combination, and many of the advocates of the mechanical theory try to show that all the lowest desires are explicable in terms of chemical affinity. Taking hunger as the first desire in organised matter, it occurs in the lowest organisms in the intuitive form; indeed, it can scarcely be said to occur in any other form even in man, as it is not much dependent upon the senses. If hunger, as the mechanistic theory avows, results through unsatisfied chemism, then the fact that all desire comes out of the inorganic world is easily established; but it is not clear that

hunger is due to the expression of unsatisfied chemical bonds, because the compounds which have yielded energy to the organism are not more unstable than many other organic bodies, and in the process of the repair of waste in the body of an organism, some of the broken up products are removed and new material formed instead. It is rather the repair of a crystal which has had one of its facets injured, than the formation of new compounds by the addition of certain elements, which represents the work done in the organism by analogy with the inorganic world.

Herbert Spencer has shown very forcibly that "form" has more to do with the repair and recovery of an injured organism than the desire expressed by unsatisfied chemical bonds, or chemism. If an infusorium is cut in two, the waste products due to the injury are not simply reconverted into new flesh by satisfying the unsatisfied bonds, but the organism *grows* until it is of the same form as before, even to the extent of half its body. Hunger is the indicator that material is wanted to fill up the breach which has occurred in the organism through exertion, vitality or injury. One writer has stated that hunger is a kind of intelligent unsatisfied chemism, because it expresses special desire for certain foods just in proportion as they represent the material required to construct the necessary chemical compounds. If

this was true, the bodies of human beings vary in chemical composition, else the old proverb that "one man's meat is another man's poison" would not hold good. The person who has a birthmark on his body representing the desire of the mother for cherries is passionately fond of the fruit, and he has only to see them to long for them at any time. That there is little connection between chemism and cherries will probably be admitted by all. Pre-natal suggestion and secondary intuitive suggestion have played a very important part in determining desire of all kinds.

The desire which follows hunger in organised matter is reproduction or subdivision of the organism, but it is not so easy to define the order in which the other desires were first expressed, although they are all found, primarily, in the intuitive stage long before the senses were evolved.

CHAPTER III.

INTUITIVE FUNCTIONS IN ORGANISED MATTER, OR LIFE (*continued*).

Intuitive Energy.—It has been mentioned that energy is present in the organic realm in the intuitive stage, and as the chemical combination of the organic elements gives rise to similar energy, it is evident that all the forces generated by the union or dissociation of chemical compounds were present in the inorganic world before organised matter existed. Romanes said that "the beginning of nerves was the beginning of mind," and, until these are met with, all the energy set free in the lower organisms, although it may be purely physico-chemical, may be called *intuitive energy*, because it is started by Nature, and not by the will of the organism. This is premising that where there is no mind there is no will.

Vital Energy.—Many think that vital energy is something very distinct from ordinary energy, and the term is still used to denote a unique form of force. Any term savouring of *vitalism* is, however, very objectionable to the champions of the mechan-

istic theory, but it is probable that the words *vital force* will die very hard, if, indeed, they are not fitted to survive. Professor Bunge of Basle includes *vital energy* in his scientific vocabulary, only it does not retain the meaning assigned to it by those who think that the energies of life are in no way related to the ordinary forces of Nature. Professor Bunge states forcibly that his *vital energy* is very closely related to the ordinary forces of Nature, and that it is just as much *energy* as heat or electricity, and is originated from other modes of energy. But it differs from other forces even as electricity differs from light, or light from radiant heat.

Dr. Carus says: "Vitality is an energy just as well as all other energies, but its form is peculiar; it is neither electricity, nor light, nor heat alone, nor any other energy we know of, although it may be more or less similar to the one and to the other. Vitality originates from the same great reservoir of energy as all the other forms of energy, and it stands with them in a constant interaction. Yet the only engine by which, to our knowledge, vital energy can be created, is the animal organism. According to the present state of knowledge, we can, to say the least, hardly expect to be able to produce vital energy in any other manner. This truth is most concisely formulated in the statement that life comes from life only."[1]

[1] *Soul of Man*, p. 53.

Herbert Spencer states that all the energies of life, mental and bodily, are natural forces. He mentions that nerve force may be of the electric type, but it is not electricity.

Of the forces common to life, however, physico-chemical energy forms a very large proportion, and if it is once admitted that intelligence is resident in the forces as well as in the vital or animal organism, then little fault need be found with the dynamic theory. The conclusion is, therefore, that the energies of life are natural forces closely allied to other forms of energy though differing in kind, and, as far as is known to-day, peculiar to life.

Intuitive Mathematics.—It was shown in the last chapter that the proportions in chemical combination are exact and invariable for definite compounds, and, so far as chemical combination is concerned, this exactitude runs all through organised life. There is nothing erratic, chance-like or uncertain about chemical combination, whether in inorganic or organised matter. And, astonishing as it may seem at first sight, *intuitive mathematics, or, in other words, the genius of the calculator, of the gifted mathematician, is a vestigial relic from the inorganic world.* The progenitor, metaphorically speaking, of the mathematical faculty is *chemical combination.* Thus, perfect action, exact quantity, perfect regularity and certainty

are found at the very threshold where life is said to begin. The reason why these facts have not made more impression is that chemical combination has not, hitherto, been properly associated with life. It has been regarded as belonging essentially to the world of so-called *dead* matter, and a line has long been drawn closely, and unwisely, between what has been styled the inorganic and lifeless, and the organic and living realm of matter. The mechanistic theory of life does not err in this particular, but it errs greatly in regarding physical and chemical energy as mechanical in character.

The *continuity of intuitive mathematics* is seen in the form assumed by crystals in inorganic matter, then in the form of organisms in organised matter. If a crystal is broken and immersed in a solution containing the necessary chemical compounds, the crystal can be repaired so as to take its original form. If an infusorium is cut in two, the pieces will grow, and perfect organisms result provided a plan of the complete form of the organism exists in each half of the divided infusorium. If the tail of a *newt* is cut off it will grow again.

When insects like the spider and the bee are reached, they are found to be endowed with *intuitive mathematics*, as the web of the spider and the cell of the bee are on perfect and certain lines. Thus

mathematics is found in the intuitive stage before knowledge by sense is reached, both in the inorganic realm and in that of organised matter.

Intuitive Knowledge.—This is easily discerned in the inorganic realm, and it is not less easily manifest in organised matter. Under the head of *motion intelligently directed or direction by intuition*, functions are mentioned which may be styled *intuitive knowledge*, for the infusorium which knows the direction of its food has knowledge, although it is only intuitive and not knowledge by sense. The pigeon, birds of passage, and many others of the bird family, may be said to have knowledge of position and of direction. When the lowest organisms are said to have *perception*, this is *intuitive knowledge*, because they have no sense organs to *perceive*. The *Amœba* in perceiving the difference between a particle of food and a particle of sand has *intuitive knowledge*, which enables it to incorporate the one and reject the other. A good example of knowledge at a distance is the instance of the *Badhamia* and the fragment of *Stereum* given on p. 46, and a better example still, perhaps, is that of the *Didinium* which shoots its prey from a distance, selecting a certain individual in preference to others of the same species. These organisms have *intuitive knowledge* also, as the *Badhamia* must know where the *Stereum* lies before it can elongate in that di-

rection, and the *Didinium* must have knowledge of position in order to shoot its darts on the right side, as well as to seek the injured prey. The *Actinophrys* is another good example of *intuitive knowledge*, as it knows the spores upon which it feeds, and having found a colony it rambles here and there between meals, always finding the required place again. Such organisms distinguish food from other things *intuitively*, as they manifest excitement, like the *Badhamia*, when their food is in reach, or bring their battery of trichocysts into play, like the *Didinium*, whilst others discover by their pseudopods, vibratile cilia, flagella, or other protruding feeler, the particular organism or food required.

When it was shown by Engelmann that the organisms which appeared to have sight functions without sight organs could not be said to *see*, some other explanation was necessary to cover the strange and apparently inexplicable action of organisms without sight organs. Some of these were said to have sense of smell, although devoid of olfactory organs.

Where there are no sense organs, as in the *Badhamia* above, it is best to conclude that what appears to simulate sight or smell should be regarded as intuitive knowledge. The *Badhamia* has neither sight nor olfactory organs, and it would be as reasonable to infer that it saw its favourite food *Stereum*, as to conclude that it smelled it.

The dogfish which has no eyes is likewise made aware of food near at hand, but surely it requires little argument to prove that these animals do not detect the presence of food a considerable way off by scent *in water*. Scent must be brought to the olfactory organs before it can be distinguished in water, but the animals are aware of the presence of food the instant it touches the water, and before even a vibration could reach them. That it is not vibration which arouses them is shown by dropping a stone, when no notice will be taken. A very simple explanation is at hand: intelligence in the Unseen educated the Actinæ, the dogfish, etc., and *suggested* that organisms without sense functions should have intuitive knowledge. Food may be held close to the water above the animals without stimulating them, but the instant it touches the water they are made aware within certain limits as to distance. Nature created hunger, and in the absence of sense organs Nature makes the animal aware that food is within reach. All this is done intuitively by suggestion from the Unseen.

The same explanation is true of the faculty possessed by the land leeches of Ceylon, which are credited with "positively astonishing delicacy of olfactory perception, seeing that they smell the approach of a horse or a man at a long distance". The leeches do not smell, they *know intuitively*. This is the correct

explanation, and there is nothing more wonderful about it than there is about *chemical combination.* It is only necessary to start with *exact quantities* to expect that *exact direction* and *exact knowledge* should follow. After considering how the lowest organisms become aware of the presence of food without seeing it, and perform the most striking adaptive movements as accurately and purposely planned as if a thinking mind was involved, one is bound to conclude that these organisms have knowledge, undoubtedly, although it is *intuitive knowledge*, and that they are in correspondence with the Unseen, with the same region with which the prophets corresponded—with the region of all-knowledge.

And yet when history mentions that men possessed *intuitive knowledge*—the revealed knowledge of the prophets—such history is either regarded as a fable, or else relegated to the domain of the miraculous and supernatural. It is in this respect that the greatest mischief has been done to the cause of psychic truth, for had *intuitive knowledge, or perception* been called "*first sight,*" which as a matter of fact it is, instead of "*second sight,*" as it is often styled, the *miraculous would have been found at the beginning, instead of in the last chapters of the world's history.* Elisha's knowledge of the whereabouts of the Syrian King[1]

[1] 2 Kings vi.

and of the doings of Gehazi[1] would not be regarded with much wonder, inasmuch as it is simply a vestigial relic of the past, a like power of discernment having been endowed upon the Ceylon leech, the Medusa, the dogfish, and the majority of moving organisms which are wanting in sense organs. It often happens—and such experience is common to the race—that a person becomes aware of the presence of another without discerning that presence by the senses. This need not surprise us much, as it is only a vestigial relic from the *infusoria* and other low forms of life.

Intuitive Choice.—That choice actions are regarded as indications of the highest intelligence has been already mentioned, but choice, like all other functions, is found first in the intuitive stage. Not long after direction by intuition is met with, organisms are seen which feed upon definite food either of vegetable or animal character, and they thus exercise choice, although it is admitted that the organisms have no cognisant faculty resident in themselves. This faculty of choice may be attributed to peculiarities in the buccal apparatus of the animal, to the hard or soft tegumentary envelopes, but the remarkable fact that choice is found among the nerveless and structureless organisms is in no way rendered less wonderful by these explanations. If the organisms attacked every-

[1] 2 Kings v. 26.

thing which came in reach, and only succeeded in killing those victims most vulnerable to the buccal apparatus of the attacking organism, then the marvel of choice would disappear, because there would be little proof of choice actions performed. The fact is that the organisms do *not* attack every species, but only certain individuals, which shows that there is choice knowledge involved with regard to the prey best suited to furnish food. In this the marvel of choice consists, and it is a marvel. On this subject M. Binet is very definite. He says: "This exercise of choice is one of the most incomprehensible of phenomena; it is exceedingly difficult to explain it without resort to anthropomorphism."[1]

Intuitive Memory.—Since the basis of memory is nothing more than the power to repeat what was done before,—to repeat the function of a fixed suggestion in the case of intuitive memory, and to repeat nerve irritation in the case of memory by sense,—it does not require much argument to show that memory is a function belonging to the inorganic world. Those who have regarded memory as an exclusive concomitant of nerve and mind will object to memory being explained in the sense given above, but they also object to what is without doubt memory in organised matter simply because there is no nerve involved.

[1] *Psychic Life of Micro-organisms*, p. 62.

For instance, the retirement of the *vorticella* when their cilia are touched, and the repetition of the same action again and again, is simply ignored by some biologists. So is the behaviour of the *Mimosa pudica*, although the repeated withdrawal of the leaves and fronds is as much an act of memory as the movement of an animal out of danger.

When the *Actinophrys* and many other organisms little higher in the scale of life come across the specific food upon which they subsist, they must be said to remember that it is the material required; and when they move to a distance before all the spores are consumed, and return again and again to take others, they must be credited with memory of the whereabouts of the spores. Referring again to the *Badhamia* as one of the lowest vegetable organisms, it must be credited with memory, as it will show excitement and elongate in the direction of a bit of the relished *Stereum* as if it knew its food, and remembered its speciality. In the same way the *Amœba*—the lowest animal organism—*remembers* what is food and what is not food, for it will not incorporate grains of sand or mineral matter. Again the *Didinium* must be said to remember certain infusoria, because it will only cast its trichocysts at those upon which it feeds. *Intuitive memory* is found at the very beginnings of organised matter, because when the first or

primary cell divided, the second organism so formed inherited all the functions of its predecessor, and may be said to *remember* all that those functions represented.

Some of the lowest organisms which propagate by budding show the hereditary character of intuitive memory, as the buds, not all at once, but in due time, perform all the functions which the parent did. Until nerves are formed it is not assumed that *intuitive memory* is anything more than the Law of Continuity in an endowment, and even after nerves are formed the memory does not rise above the intuitive stage. Memory is then as much a function of organisms devoid of nerve as it is of the higher animals, and further reasons for this conclusion will be given when considering the relationship between the intuitive faculties and nerve action or mind in the next chapter.

Intuitive Feeling.—The difficulty of showing that inorganic matter feels has been mentioned, but that there is indication in inorganic matter of what appears as feeling in organised matter is certain. When, however, the lowest forms of organised matter are observed, evidence of feeling becomes at once apparent. No better evidence of this can be given perhaps than the Vorticels, which show memory as well as feeling. When the vessel containing the organisms is jarred, the stalks of the Vorticels contract and fold spirally, and they also contract when

their protruding cilia are roughly touched. The same action is seen in the case of the *Mimosa pudica*, whose leaves and stems are sensitive to the touch, and undoubtedly exhibit true feeling, although as yet *intuitive*. To those who regard the necessity of having *nerves* before feeling can be experienced *intuitive feeling* will be ignored; but the line once drawn by Romanes and others that the beginning of mind was the beginning of nerves is gradually being eliminated. All those lower forms of life devoid of nerves which have cilia, flagella, filamentous pseudopods, or suckers, exhibit feeling, and it is through the action of these feelers that the organisms receive warning of the presence of enemies. Feeling then is a function belonging to the lowest forms of life, and this will be further elucidated in considering the relationship between intuitive feeling and feeling by nerves in the next chapter.

Intuitive Evil.—It is becoming known, generally, that evil was in the world long before man made his appearance, and like all other functions and principles, evil was in existence before nerves were formed, so that evil is first met with in the intuitive stage. As an illustration of this, the observations of Mr. Carter, F.R.S., may be cited. He saw a sluggish *Amœba* creep up the stem of a stalked and triangular *Acineta*, place itself around the ovarian aperture from which it seemed

aware that a young *Acineta* was about to come forth, and remain there to receive "the young one, nurse-like, in its fatal lap, incepted it, descended from the parent and crept off". The *Amœba* was further watched to see the fate of the young *Acineta*, which became broken down and divided in the process of digestion.[1]

When one views the minute forests and fairy parks revealed by the microscope in pond life, and observes some of the lovely lake dwellers, a veritable Paradise is seen, in miniature; but upon closer scrutiny the "trail of the serpent" is soon marked, and evil in the intuitive stage is manifest. The animals in the microscopic world, even as those higher in the scale of life, prey upon each other, and, as in the illustration above, curious knowledge, and wily action, are employed in the furtherance of cannibalism and murder. If "thou shalt not kill" is exact knowledge revealed to man, and manifest primarily in animal nature as *intuitive knowledge*, then "thou shalt not kill" must be as binding upon the *Amœba* as upon man. That the *Amœba* is not answerable for its actions is at once admitted, but *Nature is responsible*, and either the First Cause has erred in the breaking of laws predetermined and absolute, or else intelligences in the intermediate world are the culprits. Wheresoever the responsibility rests, Nature is most cruel, and unmoral.

[1] *Annals of Natural History*, 1863, p. 46.

CHAPTER IV.

RELATIONSHIP BETWEEN THE INTUITIVE FACULTIES AND NERVE ACTION OR MIND.

IN the previous chapter mention was made of some of the intuitive faculties common to organised matter, but it is not assumed that all the faculties have been referred to, or that even the most important of them have been dealt with. Avoiding repetition as much as possible, it will be best perhaps to summarise these intuitive faculties, and just point out a few others not previously considered, and which do not require detailed reference, before touching upon the question of mind.

When the elements of which our globe is composed were in their hottest condition, it is probable that they consisted of atoms in an uncombined state. When so constituted it is very likely that the atoms moved with some velocity and precision in accordance with the plan and suggestion of the First Cause. The movements of the atoms of matter in the cooler stages of the planet were as intricate, as elaborate and as varied as it is possible to conceive, and when

the point of cooling was reached, in the history of the globe, at which vegetable life was made manifest, the movements in living matter were neither more intricate nor more varied than was the case with gaseous molecules, or, perhaps, with the movements of the heavenly bodies. It has been pointed out, also, that intuitive motion appears to be to some extent manifest all through organised matter from the cell upwards, side by side with motion, which is the simple result of physico-chemical forces. The relationship between motion and mind, however, in its simplest forms is chiefly physico-chemical, and all the nerve vibrations are due solely to this cause.

Intuitive affinity or desire is the next faculty which manifested itself in inorganic matter, when one atom united with another to form a molecule, thus giving rise to chemical affinity. This power is as strong in the inorganic realm as it is in the organic, and the affinities of carbon, hydrogen, oxygen and nitrogen are very similar in character to the affinities of other elements.

After *intuitive form* had been determined, *hunger*, perhaps, was the faculty or desire which was first manifested in the organic realm, and so plants grew according to the form determined by the First Cause. The crystal had previously grown according to the form suggested, and *intuitive form* is, consequently, a faculty which originated first in inorganic matter. The

same thing may be said of *exosmosis* and *endosmosis*, which play such an important part in the diffusion of fluids through organised matter, because the diffusion of light at the earliest stages of gaseous incandescence, and the subsequent diffusion of gases and liquids in inorganic times, are sufficiently clear indications that *diffusion* in organised matter is simply a faculty handed on from the inorganic realm.

Chemical combination and cohesion of matter had similar origin, and the relationship of all these intuitive faculties to mind is a common relationship calling for no special consideration. It has been noticed, however, that exact quantity and quality occur intuitively in chemical combination at a very early period in inorganic times, and that intuitive knowledge of the most exact type existed at the same period, whilst even memory and feeling were foreshadowed long before organised matter existed on the earth. Intuitive mathematics, or the exactitude of chemical combination, intuitive knowledge, intuitive choice, and intuitive memory, are so closely interwoven with mind that they will come in for some further consideration when nerves and senses are under notice.

The part which the Intuitive Suggestion of the First Cause has played all along the line will also receive further elucidation, as well as *secondary intuitive suggestion* and *suggestion by sense.*

A glance at the comparative value of the intuitive faculties will reveal some interesting points. If the intuitive faculties are exact and certain in action, it is evident that they differ widely from nerve faculties and mind. Take intuitive direction as an example. The casual observer cannot fail to note that the keenest eye is incomparably less useful in determining the direction of an unknown position than is the "homing" faculty possessed by birds and animals. The facility with which these and even wild savages travel to and from their homes is remarkable and exact, there being not the slightest anxiety manifested so far as the result is concerned; indeed, it is only when such anxiety is shown by the higher animals that the intuitive faculties become covered and hidden through the muddling of the senses. It will be seen, therefore, that the intuitive faculties belong to an exact region—a region not without the organism—but, like the ether, pervading all matter, and the organisms devoid of nerve and of so-called mind correspond with that region, and perform their actions with accuracy and certainty. In short, intuitive actions in themselves are certain and exact, whilst intuitive knowledge as it is possessed by the lower organisms is of the same character.

Furthermore, all the knowledge and all the correspondences which the higher animals and man acquire

by reason of their being furnished with nerve, brain and mind, come to them through the intuitive faculties, because mind is simply a series of vibrations chasing each other through nerve channels, and brain matter; or, as Herbert Spencer puts it, "Mind is certainly in some cases, and probably in all, resolvable into nervous shocks".[1] These nerve vibrations knock at the door of the intuitive faculties in order to get an opening into, or correspondence with, the region of all knowledge—the intuitive region. If this is true, and there will not be much difficulty in proving it in sequel, the intuitive faculties must be of infinitely greater value than the sense faculties, and so they are; and after considering them, no one can fail to see the error of attaching such paramount importance to the senses as so many of the ablest Biologists have done.

Memory is a very important part of mind, doubtless, as, by its aid, knowledge by sense is accumulated, but to state, as Romanes did, that "conscious memory may become degraded into unconscious memory" exhibits a sad want of appreciation for the intuitive faculties. The comparative value of intuitive memory, and memory by sense or nerve, is greatly in favour of the former. Memory by sense may be likened to a man travelling on the Underground Railway straining his eyes to discover the station at which he is going

[1] *Psychology*, vol. i., p. 156.

to alight, whilst he is calculating, by association, the relationship of the last station to that at which his journey ends. Intuitive memory is compared to the man sitting comfortably in the carriage which is furnished with a station indicator, that not only reveals the next station, but shows at a glance all those which have been passed as also those which are to come. Surely it is memory by sense which has degraded intuitive memory. Where is the man who prefers to burden his organism with ten ounces of highly sensitive brain material to form a number of pigeon-holes of information in preference to reading *at will* a mental picture with all the required information visible at a glance? In short, memory by sense is like the man wading through his Bradshaw to discover the time of his train, whilst intuitive memory shows on a board in front of him all the information he requires. And, in like manner, all the intuitive faculties are superior to the sense faculties, and when the mental faculties are imperfect, in any particular, it is the machinery of nerve and brain which is at fault,—the intuitive faculties with which the mind is in correspondence being perfect and exact.

In the face of these facts there is room for wonder why the brain of man is so carefully measured, and why the weight in ounces is so nicely calculated; and why it is that this mass of brain matter should

be so carefully compared with that of the Simian stock with a view to show how superior man's intelligence is in comparison, because of his head being burdened with a few ounces extra of brain matter. This is still done, notwithstanding it has been often shown that men and women of the greatest intelligence have not always the largest heads, or the largest amounts of brain material.

To form a true conception of the comparative value of the intuitive faculties, it is best to select an animal which has not become dependent upon sight or observation. Let the ant, then, be compared with man, and its intelligence measured by the weight of brain material. The ant wins by miles. In the ant, although there is a nervous system, the intuitive faculties largely predominate, and the sense functions, apart from feeling, are almost unexercised. No one despises the ant on this account, but all wonder how so diminutive a creature, with so minute a brain, is capable of teaching man many useful lessons in true socialism, which is found in the intuitive stage among ants, and how it could have adopted a system of home rule so perfect in many particulars. Some authorities have tried to explain the great intelligence of the ant compared with its weight of brain material in terms of *quality*. Dujardin stated that the degree of intelligence exhibited by ants stood in an adverse proportion

to the amount of cortical substance. If the intelligence of some creatures is in direct ratio to the quality of nerve and brain material, is it not a rather strong reflection upon the Creator, who must have erred greatly in furnishing the highest specimen of the animal kingdom with such inferior brain material? The vast difference between the intelligence of man and the ant when compared in terms of brain weight receive no elucidation from Dujardin's deductions, and the ratio of intelligence cannot be determined either from the quality or quantity of nerve and brain matter. The only explanation of the difficulty commensurate with all the facts is, that the intuitive faculties have always predominated,[1] and that Nature is giving to the possessors of the five senses a

[1] Some of the experiments made by Lubbock and others with ants have tended to show that they are not possessed of a high order of intelligence, and Lubbock concluded that the ant travelling in daylight takes its direction from the light. This conclusion he deduced from the fact that when ants were rotated and the position they occupied in relation to the light was changed, their sense of direction was confused, and, at first sight, this explanation appears to be correct. But this result is very unfair to the ant, as it assumes that the sense of sight is one of the chief faculties, whereas it is the weakest, and the very faculty which in the experiments confused the sense of direction. The ant lives most of its life in darkness, and the only sense faculty that is highly trained and peculiarly sensitive is feeling, which is very perfect, so perfect, apparently, that the vibrations which in one insect arouse and induce correspondence with *intuitive knowledge* are capable of being transmitted through the antennæ to the brain of another ant, and there arouse and open correspondence of the same kind with the region of *intuitive knowledge*.

lesson, which to some extent has been put in practice, and which is destined to receive more attention in the years that are yet to be.

It is agreed, somewhat generally, that mind in animals had no existence until a nerve was formed; but some of the lower organisms, as noted in the last chapter, live, move and perform most astonishing adaptive actions, although they have neither nerve nor mental process whatsoever, whilst other organisms undergoing their first lessons in neurology are eminently stupid in comparison. What is the explanation

In short, the communication of knowledge by one ant to another is the intuitive stage of what "thought transference" is in the higher animals and man.

In the ant the "homing" instinct is well developed, hence it must be concluded that they *know* whether they are going in the direction of, or away from, home. On account of its being so much in darkness the ant *does not* trust to its eyes for guidance, and the action of the light upon its eyes is that of a chemical stimulus, like the action on the primitive eye of organisms. The rotation of the ant interfered with the action of the light on the particular side of the head previously influenced, and the ant at once set itself back in its former position. When the light is reversed the ant assumes its original position thereto, and would be thus returning instead of going away from home. Knowing *intuitively* that its direction was wrong, it turns again and eventually becomes bamboozled, like the cat which has been rotated in a carpet bag until its intelligence was so confused that it thought neither about home nor direction, and its mind during the rotary travelling was a blank. Like the cat, the ant has a brain, small as it is, and a certain, though small, amount of stored intelligence. This becomes muddled by the reversed light, and the nerve stimulus caused by the light falling upon the eye is a decided disadvantage to the ant, because it has not sufficient sense *intelligence* associated with its light vibrations.

of this? Haeckel said: "We meet with the weighty fact that sense function is possible without sense organs, without nerves". Romanes is still more explicit. After mentioning some observations by Mr. Carter, in reference to the *Amœba*, a nerveless organism, performing most wily and cunning acts, Romanes said: "With regard to these remarkable observations, it can only, I think, be said that although certainly very suggestive of something more than mechanical response to stimulation, they are not sufficiently so to justify us in ascribing to these lowest members of the zoological scale any rudiment of truly mental action. The subject, however, is here full of difficulty, and not the least so on account of the *Amœba* not only having no nervous system, but no observable organs of any kind; so that, although we may suppose that the adaptive movements described by Mr. Carter were non-mental, it still remains wonderful that these movements should be exhibited by such apparently unorganised creatures, seeing that as to the remoteness of the end attained, no less than the complex refinement of the stimulus to which their adaptive response was due, the movements in question rival the most elaborate of non-mental adjustments elsewhere performed by the most highly organised of nervous systems."[1]

[1] *Animal Intelligence*, pp. 21, 22.

But Romanes takes no further notice of these adaptive movements,—he simply dismisses them as hopelessly inexplicable. Still these intuitive faculties or functions are the very foundation upon which nerve and mind are built,—the very bones and sinews upon which nerves are afterwards laid. Indeed, as already foreshadowed, all the faculties of mind have the intuitive faculties as their base. Although it may be difficult to prove at first hand that taste, smell and hearing are based upon intuitive faculties, it can be shown without much argument that these are founded upon feeling, as, indeed, is sight also, and if feeling by nerve rests upon intuitive feeling, then all the senses are based upon intuitive faculties. Even intelligent life is founded upon intuitive life, and strange as it may appear at first, intuitive life is everlasting.

There are evidences in the *Mimosa pudica* and among the *Infusoria*, as well as most of the lower organisms, that before a nerve was formed, and the *sense* of feeling instituted, Nature felt for the organism, and this was *intuitive feeling*. Before an eye was formed, Nature saw for the organism, and there was *intuitive sight*. In like manner before nerves were formed, Nature exercised the functions of taste, smell, and hearing, on behalf of the lower organisms.

Standing on the threshold of *mind*, according to

Romanes, it may not be out of place to ask this question: If these wonderful adaptive movements are possible without nerve, mind or brain, why should mind ever be evolved? If the dogfish *knows intuitively* that food is within reach and can discern it without eyes, of what value is eyesight? If the Badhamia knows its own special food without the sense of smell, why have olfactory organs? The answers to these trite questions are not difficult to find. Before nerves were formed, or organs of sensation, there was no consciousness, because organisms without sense function could not acquire *knowledge by experience*, and knowledge by experience is necessary before a being can be held responsible for his actions. The intuitively guided organism is only an automaton.

Romanes distinguished between reflex action, instinct and mind, but he points out that what we call choice actions even in man may be as mechanical in the sense of effect of certain stimuli as are the reflex actions of the lower organisms. The following is Romanes' description of mind: "It is, then, adaptive action by a living organism in cases where the inherited machinery of the nervous system does not furnish data for our prevision of what the adaptive action must necessarily be—it is only in such cases that we recognise the element of mind. In other

words, ejectively considered, the distinctive element of mind is consciousness, the test of consciousness is the presence of choice, and the evidence of choice is the antecedent uncertainty of adjustive action between two or more alternatives."[1]

Such explanation places mind at a very high altitude in the animal scale, and as a classification it may be useful; but it is a question whether it does not involve considerable complication, because Romanes himself recognised that memory was the foundation of mental life. He said: "The most fundamental principle of mental operation is that of memory, for this is the *conditio sine quâ non* of all mental life. . . . The nerve centre concerned *remembers* the previous recurrence of its own discharges; these discharges have left behind them an *impress* upon the structure of the ganglion just the same in kind as that which, when it has taken place in the structure of the cerebral hemispheres, we recognise on its obverse side as an *impress* of memory."[2]

The conclusion of all this is, that reflex action is simply the recurrence of previous actions remembered by the nervous processes of the organism. And yet there is reflex action where there is, according to Romanes, neither nerve nor memory: as in the case of the Vorticels and other organisms. Romanes

[1] *Mental Evolution in Animals*, p. 18. [2] *Ibid.*, p. 35.

admitted this when he said: "Sensation was . . . exclusive of reflex action. . . . But for the sake of drawing the line somewhere with reference to Sensation, I draw it at the place in the zoological scale where we first meet with organs of special sense, that is to say, at the Cœlenterata. . . . Wherever there is Feeling there is Sensation, and wherever there is no Feeling there is no Sensation."[1]

No fault can be found with these distinctions, but the great mistake too often made is to "*draw a line*" at all. Especially is this the case when there is no line to draw, as in Nature, which knows no line of demarcation. On the contrary, there is perfect and regular continuity all through, however we may obscure it by our superficial knowledge. It is easy to cast aside as inexplicable the wonderful adaptive movements of some of the lower organisms already referred to, and it is not difficult to do the same with *reflex action.* But can there be reflex action without nerve or memory? No, for there is nothing to reflect. The fact is that no theory of mind evolution can have any real foundation until it is admitted that *memory, reflex action, feeling, etc., are met with, first, in the intuitive stage,* where Nature alone is responsible, and that nerve and mind, the senses and the intellect, are all based upon *intuitive functions.*

[1] *Mental Evolution in Animals,* pp. 78, 79.

CHAPTER V.

THE DEVELOPMENT OF THE SENSES.

Feeling.—It is difficult to determine the point at which nerve begins, because probably there is no such point; and, as in the case of all the faculties and all the senses, no line can be drawn and no point determined, by reason of the intuitive faculties passing imperceptibly into the sense faculties. When nerve is discovered, as in the Cœlenterata, there is both sensation and feeling, according to Romanes, and this conclusion may be accepted. The Medusa feels. What is feeling? It is as well, perhaps, to point out that what we call feeling—the sense of feeling—is resolvable into two or more parts. There is first the sensation due to recognised nervous irritation. Then, secondly, there is what Dr. Carus aptly terms the "awareness". The latter has nothing to do with the irritation of nerve, but permits of its interpretation by the aid of memory. It is not intended to analyse feeling thus, because intuitive feeling and intuitive knowledge explain all the facts thoroughly. Memory does not create feeling, as some think, nor the aware-

ness, for both are found in the intuitive stage among the lowest organisms which feel with their cilia, and receive intuitive awareness of the presence of food and of enemies which prey upon them.

The formation of nerve did not give rise to feeling, for this already existed in the intuitive condition; it only afforded a definite track along which irritable vibrations could pass to a definite centre or ganglion, and so permit animals of complicated structure and form to be evolved. It is very probable that the intuitive feeling of the lower organisms devoid of nerve is accompanied with vibrations, and though improbable, perhaps with irritation of substance. What is the difference between intuitive feeling and sense feeling? Simply this, the organism is made aware or conscious, in sense feeling, that the irritation of nerve signifies that it has been touched, but that is the extent of the awareness, by sense, in an organism devoid of the cognitive faculties, or one that only possesses them in the intuitive stage. The Medusa *feels* when the hairs on its body are touched, and that feeling is not dissimilar, probably, to what we experience when our most delicate feelers are gently moved. Run a finger over the extremities of the eyelashes, and mark the considerable and unpleasant irritation which follows; and when it is considered that the Medusa has only this one sense of feeling, a

delicate touch gives rise, doubtless, to most disagreeable irritation, while memory reminds it of previous experience. Memory is said to be the recurrence of certain stimuli or discharges giving rise to vibration or irritation similar in kind to what had occurred before. But previous to the formation of nerve there was *intuitive memory*. Was this endowment lost as soon as nerves made their appearance? No; then why does not intuitive memory enter into the calculation when nerves appear in the economy of the organism? This is a most important question. *Intuitive memory* is the Law of Continuity in an endowment upon living though *unconscious* matter. *Nerve feeling* is the Law of Continuity in nervous irritation or stimulation built upon the previous intuitive endowment. The stimulation of nerve tracks by touch opens the door to a new endowment. Hitherto Nature felt for the organism, now Nature is going to make the organism feel. But previous to the formation of nerve, organisms had intuitive movement from danger and intuitive direction to avoid that danger. Of what use is feeling to the organism, for it might feel, and feel very sore, and be conscious of feeling, as it appears to be, but the knowledge that it is touched cannot aid it in the slightest particular, unless it had the cognitive faculty to interpret the significance of the touch? The

answer to this question is, that *intuitive feeling* is still possessed by the organism, and the nerve stimulus makes contact—couples up, so to speak—with intuitive feeling which is in correspondence with the *intuitive cognitive faculties.* In other words, the nerve vibrations bring all the old endowments into play. The addition of nerve is only the old organism *plus sensation.* The formation of nerve is the first organic brick laid upon the foundation of the intuitive faculties. It is the first lesson the organism receives in the school of evolution which shall eventually develop not only a thinking, but a responsible being. Yesterday Nature felt for the organism, now it feels. It seems curious, at first thought, that feeling should be the first sense in the mental endowment, but, on reflection, the importance becomes manifest, inasmuch as this faculty, in its perfection, is to be the only one which is destined to survive at last. Sight, taste, hearing and smell perish with the body, but feeling lives on for ever. At this point it is in the history of the race that the germ of brotherly love makes its first appearance.

In the Medusa it may not be easy to distinguish without careful observation those vibrations which give rise to a pleasurable feeling from those which set up irritation, manifested as fear. It is easy to mark how irritation causes a feeling of fear, because the

lower organisms undergo their education in nerve formation chiefly in feeling of that kind. But the manner in which they move their tentacles in the sunlight and after feeding seems to indicate that they are susceptible of pleasurable feelings also. A little higher in the zoological scale it is evident that feelings of pleasure as well as dread are experienced, and it is very probable that this education, which is none other than the *moral sense in its intuitive stage*, began with the first formation of nerve.

When intuitive feeling passes into feeling by sense, it is necessary that intuitive memory shall become sense memory also, and to a certain extent intuitive knowledge passes into sense knowledge. Hence the organism becomes conscious, first of a sensation, then whether that sensation was like or unlike previous experiences, and subsequently the significance of the feeling. It is when a feeling experienced before is repeated and recognised that sense memory begins. *Sense memory is conscious repetition.* It must not be inferred, however, as it too often is, that sense memory is always accompanied by conscious knowledge, because it is most probable that all organisms possessing the sense of feeling only have little or no conscious knowledge. They are conscious they feel, and that is all, the faculties of inference and deduction being directed by intuitive feeling and intuitive knowledge.

Advocates of the dynamic theory state that all the machinery of feeling, memory and mind, in its entirety, is actuated by physical and chemical forces, and that the alterations of the structure of nerve and cell in the brain involve all the mental operations, including the registration of feeling, knowledge, etc. It has been noted, already, how various organisms have intuitive memory, intuitive direction and intuitive knowledge; and abundant evidence exists that there is a realm somewhere within the world of matter, and in closest touch with it, where all knowledge is stored.

It is not concluded that all protoplasm is endowed with these intuitive capacities, because it is organised matter, but only that such endowments are found in animal life. It seems more probable that the intuitive faculties or correspondences were opened up to the lowest organisms in accordance with their requirements in development.

The mechanistic, or dynamic, theory is correct up to the point that physical and chemical forces do all the contact making, and strengthen the nerves involved in transmitting the sense vibrations, but physical and chemical forces do not make, create or register knowledge, *for they are themselves embodiments of intuitive knowledge and force.*

Intuitive feeling will not feel for the organism

which has nerve, but the instant the organism has felt, intuitive feeling acts as *if* there were no nerves involved.

The work that Nature had to perfect first after the organism felt, was to make sure that the vibrations, in traversing the nerves, should arouse the faculty of intuitive feeling with certainty, and it is at this point the first indication appears that the organism has a voice, however inarticulate, in its own development: the first step in the evolution of what is usually termed mind. What was this step? The perfecting of the nerve material by continued use. Practice makes perfect. If sufficient repetition of nerve vibrations occurred, the material of the nerve and the attached cells became altered until they assumed permanent structure and form, so as to constitute an integral part of the organism. If it was a nerve associated with the sense of touch, the vibrations would begin in the cuticle, or in that part of the body from which the touch was to be telegraphed, and terminate in perfect union and contact with intuitive feeling. When such nerve action is met with in animals higher in the scale than the Cœlenterata, it is called "reflex action" or "instinct". It is easy to understand why the lower organisms were educated in feeling before the bestowal of the cognitive sense faculties, because Nature intended that the perfecting

of nerves in this direction should produce *intuitive sense functions*, which were to proceed as intuitively as if no sense was involved, just as is the case with the lowest organisms. All the machinery of digestion and nutrition, as well as the oxidation of the blood in the process of respiration, is of this kind. There are many nerves (vaso-motor) over which the brain exercises little or no control, in man as well as in animals lower in the scale, and, in all cases where practice had so perfected the material of the nerve with the associated cells, not only is there perfect correspondence to arouse intuitive feeling into action, but the operations go on without any mental effort, and in many instances without the conscious knowledge of the individual. In these respects man himself is still an automaton. If the answer of 2×2 is wanted, one feels that it is ready made, and visible above the mental horizon; but if 22×22 is required, to most persons the mental calculation will entail conscious mental strain, which is always involved in perfecting nerve material, so that the interstices betweeen the inception of the vibrations and their contact with the intuitive faculties shall become transparent to the human mind. When the progeny of adult animals come to maturity, they inherit those nerves which were rendered permanent by the continued practice of their ancestors; in other words,

all that is permanent in the organism is a fixed endowment, and the reproductive germs grow until the parents are reproduced in the offspring, the chief modifications being due to natural selection.

Sight.—Leaving the question of nerves and feeling thus fragmentarily and imperfectly treated, the sense of sight will be next considered. As already noted, *intuitive sight*, sometimes called "second sight," is found among the lowest organisms, and was doubtless an endowment long before sense organs were formed. Haeckel said that "amongst the microscopic Protista there are some that love light, and some that love darkness rather than light". In the *Englena viridis* Engelmann thought he discovered a primitive sight organ, and it is near this point in the zoological scale that the first indication of a borderland between intuitive sight and sight by sense is observed. Fishes have very perfect sight, but not all of them, for the sense is denied to some which, like the dogfish, are still dependent upon the intuitive faculty. What is sense sight? It is, primarily, energy knocking at the door of intuitive sight with a view to get an interpretation of the meaning of the vibrations. Sight, in its pristine simplicity, was not very complicated. A picture was mirrored upon the lens of the eye, and the vibrations due to colour, reflected matter, the strain due to distance, etc., gave rise to certain stimu-

lation, nerve stress, and change in nerve material, finally making contact with intuitive sight, which was ever in correspondence with intuitive cognition. A recurrence of the picture gave rise to a similar series of results, and sense memory being aroused, there was conscious sight, not conscious knowledge of what is seen, but simply the consciousness of seeing arousing into activity the intuitive endowments necessary to interpret the significance of the sight vibrations.

It is believed by many that when a person thinks of anything he has seen, the image of that picture is again produced upon the retina of the eye. This position assumes that sight memory has no associations with the cognitive faculties. It is well known that if a varicose vein is cut out, new channels are formed or old ones widened, and the blood flows on through these compensating streams. So the organism which has perception and intelligence opens up other channels in association with the sight nerves; and these by continued use offering the less resistance, although they do not sever the old visual processes, supplant them. When one has seen an object repeatedly, the continued practice perfects the nerve contact with intuitive sight, and the cognitive faculties enable one, as the picture is seen on the retina, to look down, as it were, into an open tube, and to perceive without effort the nature of the picture

mirrored. When memory recalls a well-known picture, it acts through its associated or compensating channels, thus relieving the organism of unnecessary and wearying strain. Cognitive pictures are not generally reproduced on the visual lens. On the other hand, where animals lower than man have no perception by sense, and are dependent upon intuitive perception, then the case is different, because the animal does not think. In the lowest organisms, where the sense faculty is limited to conscious feeling and conscious sight only, it seems certain that until there has been considerable practice in sight exercise, the image mirrored remains on the eye for some time. This is shown, by analogy, with the movements of the *Mimosa pudica*, and it is a curious fact that the actions of the organisms controlled by intuitive faculties always foreshadow what occurs in the primary development of sense functions. Nature feels for the plant, but Nature waits an appreciable time before the leaves and stems expand again after having folded in.

It is safe to conjecture, therefore, that when a fish sees another, it does not "know" that it is an enemy, nor that it is likely to be swallowed up. The vibrations due to the image on the lens are telegraphed to the nearest ganglion where there is contact or correspondence with *intuitive knowledge*, which arouses feeling by sense. Intuitive knowledge

gives rise to a strong nerve stimulus, opening the energy valve wide, and the fish, driven by great nerve irritation, or what is usually termed fear, is directed out of danger, if there is enough energy and swiftness in the organism to elude its pursuer—a case of the survival of the fittest. The fish knows nothing of why it is trying to escape; Nature pulls the reins and the fish is intuitively guided. It must be conceded, however, that the fish itself has to work the camera, and arouse intuitive knowledge, but fear feeling has a bye pass, a separate means of communication with the sight nerves, giving rise, in a chase for life, to irritant reflexes, which follow each other in such quick succession that the image on the lens of the eye is continuous, and is retained for a while after all danger is passed, as shown by nearly all the lower animals continuing to flee after pursuit is abandoned.

It is only when the cognitive faculties are in play, perfect and *quiescent*, that visual reflexes are dispensed with. A very instructive proof of this is furnished by persons who suffer from great nervousness. When a person thinks normally of a thing in the dark, he sees no visual image, because the picture is perceived and analysed through other channels than the eye. When the cognitive faculties are paralysed by fear, temporally, the compensating channels close or cease

to act, the image is reproduced upon the lens of the eye, and the person takes the position of a lower animal, devoid for the time being of the cognitive faculties. The following case illustrates the point. A girl read a ghost story which was embellished by a picture purporting to be the ghost. That evening, going home in the dark, great fear seized her that a ghost would appear. The cognitive faculties became paralysed, as they always do when fear attains a great height, and she "lost her head," as the saying is. The result was that she saw plainly enough the very figure she had observed in the book, and which she now thought was a ghost, and the image of that picture remained upon her eyes owing to the swiftly recurrent visual reflexes until she fell unconscious. This is how the human organism is affected when the cognitive faculties are cut off—paralysed by fear—and it affords an illustration of how memory and the visual organs act in an organism which has neither sense perception nor cognition. Memory, in this case, has no associations, and it is simply aroused by fear. Unless fear continually stimulates the optic nerves, the memory of what the fish saw will be lost at once; so, to obviate this, the picture of the enemy is reproduced on the visual lens repeatedly, and if the fear is intense, the reflexes follow each other so quickly as to form a continuous picture. What happened to the girl who

had seen the ghost picture shows that there are in the human economy vestigial relics of the past, in the domain of mind as well as in the domain of the body.

There is a curious vestigial relic in the domain of feeling, which affords corroborative testimony, and though sight is under consideration, it is best given here. Some persons, especially children who are "ticklish," do not require touching to develop irritant feeling reflexes, but if one points a finger towards the armpit, or any specially sensitive spot, the superficial nerves of the region become violently irritated, and once fear has paralysed the cognitive faculties, the feeling reflexes become repeated so frequently that continued and strong irritation is experienced. With some children it is enough to point the finger at them to arouse intense fear, accompanied by loud shrieking with all the irritant skin experiences. The difference between the child with the irritant skin reflexes, and the reflexes of the fish mentioned above is this: *in* the case of the child, it was the interpretation of the visual image by sense cognition which aroused the violent and continued skin reflexes; in the case of the fish, the visual image had to be analysed by intuitive cognition, which in turn aroused fear, and the feeling reflexes, by sympathy, revived the sight reflexes. Remove the cognitive faculties, and the

blood relationship of man to the lower animals becomes self-evident.

These illustrations show that the organisms which have only the senses of feeling and sight cannot analyse a picture, because they have not the cognitive sense faculties, and Nature must do it for them; the prevailing idea that associated memory, or the capacity to analyse feeling reflexes and sight pictures, occurs low in the zoological scale is not borne out by fact.

The sense of sight is founded upon feeling, notwithstanding there may be separate optic nerves, and until there was great exercise in sight vibrations considerable feeling was aroused. This is shown by subjecting the eye to intense light or distance strain, or by attempting to read print that is too small.

Sight may be regarded by many as the most important of the senses, but it is certainly next in importance to that of feeling. Its chief value, perhaps, is the part which it plays in human responsibility when the moral sense has been attained; but sight is capable of yielding much enjoyment to the animal possessing it, whilst in man the sublime and beautiful enter largely into his being through the medium of the eye.

Smell.—Some of the greatest Naturalists have had to account for strange faculties in the lower creatures which have either no sense or else possess only one;

and it will be necessary to go somewhat into detail, if not far afield, in dealing with this sense, which might otherwise be passed over by saying simply that it has feeling for its base, and is, consequently, founded upon intuitive capacity. What is too often regarded as a sense of smell in the lower creatures which have no olfactory organs is nothing else than intuitive knowledge, and where olfactory organs are formed in animals which have no cognitive sense faculties, the animal smells, but it is simply chemical action or force arousing intuitive knowledge. It is really curious to note how so many organisms which have no olfactory organs are said to have "the sense of smell".

Romanes said: "In the Actinæ Mr. Walter Pollock and myself have obtained conclusive evidence of the sense of smell. For we found that when a morsel of food is dropped into a pool or tank containing sea-anemonies in a closed state, the animals quickly expand their tentacles."[1]

The dogfish, which has no eyes, acts in a similar manner; but surely it requires no argument to prove that these organisms do not detect the presence of food a considerable way off by smell. The thing smelt must *touch* the olfactory organ in a fish before it can be distinguished, but these animals are aware

[1] *Mental Evolution in Animals*, p. 83.

of the presence of food the instant it comes in contact with the water, and long before even a vibration could reach them. What is the explanation? This: Nature created the desire to eat—hunger—and Nature makes the animal aware that food is within reach, and suggests that it shall discover and incorporate it. All this is done by suggestion from the Unseen —or by what is termed in sequel, *intuitive knowledge*, *intuitive direction*, etc. The same conclusion is true of the land leeches of Ceylon, which are credited with "positively astonishing delicacy of olfactory perception, seeing that they smell the approach of a horse or a man at a long distance" (Romanes). But these land leeches do not smell, for they have no olfactory organ, they know *intuitively*. This is the correct explanation, and as such it is not a whit more wonderful than *chemical combination*, nor does it make the facts less remarkable whether they are called sense of smell or intuitive knowledge, because, in the former case, the question must arise—who tells the leech that a horse or a man is approaching, and impels it to erect its body ready to cling to its victim?—in other words, how is the smell interpreted? It is best to call a spade a spade, and all faculties observed in animals which have no sense organs had best be called *intuitive*.

Romanes mentioned what he called "the almost

supernatural capabilities of smell in dogs,"[1] giving in detail the manner in which his terrier tracked him by sense of smell. The current ideas with regard to the scent in dogs and other animals require considerable modification. It must not be forgotten that the cognitive faculties are almost if not entirely undeveloped in animals—dogs not excepted—so the knowledge they obtain is intuitive. As in the case of feeling and sight, it is necessary that intuitive knowledge shall be aroused. The organism is hungry, then hunger arouses intuitive knowledge. The dog has lost its master, and the act of smelling is what arouses *intuitive direction.* The dog recognises its master generally, and in a crowd by smelling. If it loses its master, it smells other persons; but a well-trained dog will only smell just around where it last saw its master, and, not finding him, keeps its nose near the ground as if to catch the faintest aroma of its master (but really to arouse continual desire reflexes); the desire to find him arouses intuitive direction, and the dog follows all the windings and tortuous movements its master took. The dog does not follow because it smells the master's feet, but, desiring to find its master, is intuitively directed along the way he went. If by the noise or attack of another dog or other influence the head of the animal is erected, and its

[1] *Mental Evolution in Animals*, p. 93.

attention fixed for a brief space, the desire to find its master lapses, and the sense of direction forgotten, but a dog that has quick intuitive faculties is not disconcerted. Hunger or loneliness will create a desire to go home. Then the dog no longer keeps its nose near the ground, but maintains its head erect, and makes straight for home, although it had not been previously either in the same street or in the same town. It will be found that smell is used chiefly, if not wholly, to arouse intuitive knowledge and direction. And, just as in the case of the fish mentioned on p. 92, it was necessary that intuitive knowledge should arouse such frequently recurring feeling and visual reflexes as to keep a continuous picture of the pursuing enemy upon the visual lens in order to stimulate memory; even so it is necessary to have frequent desire reflexes in animals, else the specific desire will soon be forgotten. How well the huntsman knows this in practice, although, probably, he would laugh at the theoretical explanation, for as soon as the dogs begin to slacken their pace—lose their scent—he shouts or uses a constant phrase which the dogs have been trained to understand means "fox," and so their desire reflexes are stimulated. Badly-trained hounds will take up the scent of a hare from where she last lay and follow her wanderings, the scent arousing intuitive direction.

If the leader of the pack has fine intuitive capacity, it will be noticed that it does not smell in the open country, its head being held in a normal position for speed. When the dogs meet with obstacles which they cannot pass through, or over, and from which the fox has doubled back, then it is probable the fox reflexes may become lost unless the hunted animal has left some scent upon the undergrowth against which it brushed in its flight. The chief value of smell, therefore, is to arouse the specific desire reflexes.

Romanes said: "Such being the astonishing perfection of smell in dogs, it has been well observed that the external world must be to these animals quite different from what it is to us; the whole fabric of their ideas concerning it being so largely founded on what is virtually a new sense".[1] Little is said to-day of the supernatural *in* Nature, because Nature is now regarded simply as the manifestation of the First Cause, or of Infinite Spirit, to sense; but much caution is necessary to make sure that what is regarded as a *new sense* is not a vestigial relic, or survival of an old endowment—in the case above noticed, one of the oldest of the intuitive functions seen at the lowest end of the zoological scale in the Actinophrys when hunger arouses intuitive direction to, and knowledge of,

[1] *Mental Evolution in Animals*, p. 93.

the specific food upon which it feeds. And in the dog the desire for its lost master is expressed in smelling for him, and the desire leads to intuitive direction being aroused. The smelling is only the expression of the desire of the dog, *intuitive direction* doing the rest where the animal tracks for some distance. It is just as reasonable to say that a dog smells his home from a town ten miles away in which it never was before, as to say it smells its master's feet for a mile or more. It is true that the dog is a long way up in the animal kingdom, and very far removed from the lowest organisms, but it is evident that even the clever dog is dependent, not upon a new sense, but upon the old capacity of intuitive knowledge aroused by *desire*, and that left to itself, apart from man's immediate inspiration, the cognitive faculty is absent. Nature has educated it to feel, to see, to smell, etc., but Nature has reserved to herself the right to interpret the sense vibrations, and so in all contingencies, outside the common run of life, intuitive knowledge must come to the rescue or the animal is doomed. Nature has remedied the apparent difficulty in determining that desire shall arouse and awaken the intuitive function; hence, hunger being associated with home and food, the dog trots off towards them, intuitive direction guiding its footsteps unerringly.

The manner in which horses and cattle and other

herbivora use the sense of smell to discover which herbs are edible and which are poisonous shows that the faculty is intuitive.

The sense of smell has been so fully mentioned in order to show what remarkable intuitive faculties the ancestors of man possessed when they were on a par of development with the Simian stock, and before the cognitive faculty was established.

With regard to the senses of taste and hearing, little need be said, especially about the latter, which is so closely associated with feeling as to require no proof that it is based upon that sense. Among the lowest organisms, the ciliated infusoria for instance, an intuitive capacity which resembles the sense of taste is found, for if a little acetic acid is introduced carefully into one portion of the water in which they are, such as one end of a glass slide under a microscope, the organisms are seen to flee as if they tasted an irritant or poisonous liquid, and their method in flight certainly resembles the exhibition of fear. Even lower in the scale it is found that organisms prefer solutions containing a little morphia, but devoid of food material, to those which have abundance of nutriment, and will leave the latter for the former, and gain access thereto even through difficulties. This looks something like taste, although it is certainly intuitive.

Smell and taste seem closely allied in the lower creatures, and in aquatic animals it is very probable that these senses are not much differentiated. Where the senses are further developed, as they are in land animals low in the zoological scale, they are little more than chemical and physical action, which arouse intuitive knowledge for the preservation and well-being of the animal. There are few animals below the Mammalia which taste their food and enjoy it by reason of its taste, the majority, like the sea lions in the Zoo, bolt it unmasticated and untasted.

It will be admitted generally that taste and hearing are based upon feeling; and as feeling by sense has been proved to be founded upon intuitive feeling, the object of this chapter is attained, and no further reference will be made to the senses.

CHAPTER VI.

DEVELOPMENT OF THE MIND AFTER THE FORMATION OF THE FIVE SENSES—COGNITION, SUGGESTION, ETC.

The Ancestors of Man.—When the progenitors of man were on a par in mind development with the Simian stock, the five senses had been formed, but the cognitive faculty was practically absent. The animal was simply controlled by intuitive knowledge or instinct, and was little more than a machine. What the body had done before it was ever ready to do again, the Law of Continuity in nerve action or memory having this much to control. Although the cognitive faculties were unformed, or unadded, it is very questionable whether the most reliable and perfect intuitive knowledge which they possessed did not more than compensate for the faculty which enables us to know the reason why. It is very probable that they lived at this time on fruits chiefly and that animal food was unknown to them. Up till then, perhaps, animal energy may have been the chief characteristic of life, as surmised by some

Naturalists, although much would depend upon the position which they occupied geographically.

Professor Drummond painted the strength and agility of man's ancestors in glowing colours. He said: "Once all men were athletes, now you have to pay to see them". There are to-day among the ape family, as there were probably in the distant past, stalwart, powerful animals of considerable size, and there are smaller and diminutive animals belonging to the same order. It has never been proved from which branch man was evolved. Looking at man's stature to-day, he is certainly more closely related in this particular with the baboon than with the smaller apes;[1] but if the finer qualities of mind are regarded, such as gentleness, love, goodness, the smaller varieties bear the palm; and if these finer qualities were developed before the cognitive faculties, then it would be much more probable that man's ancestors belonged to the refined, gentle and lovable species, than to the wild, fierce and savage kind. It is likely, therefore, that when man's ancestors branched off somewhere level with the ape family, they were not characterised by animal spirits, energy and mischief, but had become quiet, docile, harmless

[1] As soon as man was endowed with the faculty of "suggestion" by sense, he would see the value of size and physical prowess, and "suggest" that the children should have increased stature, so the difficulty of size vanishes.

and apparently pensive—not thinking animals, but examples of intuitive thought, because, like all others, the sense faculty to think is based upon intuitive function. Among birds like the dove, love birds and others, intuitive love and the pensive faculty are very manifest.

When great energy and animal spirits are in the ascendant, the animal is satisfied with its own prowess, and seeks less the companionship of its fellows. When the seeming pensive and less active condition is reached, there is more desire for companionship developed; and although at first sight it looks probable that in the case of *intuitive thought* the animal would be so wrapped up in itself as to be unconscious of its surroundings, this was not so, because it *did not think*, and *feeling* was the faculty which was most strongly developed—sense feeling—and with its exercise came the knowledge by sense that it was most enjoyable. When primitive man passed into this pensive condition, he ceased to leave his mate after the pairing season, and life-long partnership finally supervened, but this did not result in consequence of their pensive habits simply, but *because there was a charm in companionship.* Nature had already educated them in *intuitive love*, as shown in their behaviour one to the other, and after they were sufficiently practised in the intuitive faculties,

love by sense was added. As these pensive animals sat side by side, a strange and most pleasurable feeling was experienced. It was a hallowed feeling. Nature was still holding them to the pairing season for reproduction of the species, and this most pleasant sensation which resulted from companionship was in no way associated with sexual relationship, but was experienced apart and independent of it. Nature has left some vestigial relics, like the beacon fires on distant mountains, to afford information of what happened—long ago. It is not at all uncommon to meet with gentle birds and animals which have cultivated love by companionship to such perfection that they cannot live alone, and when one dies the other refuses to eat or to be comforted, and dies also. This resulted because the animal became oblivious to all except companionship, and is not to be regarded as a high development of the cognitive faculties, or what is often called quick wit or intelligence, but is rather the result of dependence upon the intuitive powers.

Presuming that the progenitors of man were pensive, loving animals, certain changes would naturally result after prolonged experience. Less food would be necessary, and they ate less, the contented mind being a continual feast. In the pleasure and rapture of companionship the pairing

season was sometimes forgotten, and progeny were begotten less frequently, and the period of life was lengthened as there was no great strain upon the economy resulting from violent exercise, the want of food, or the effects of severe cold.

Professor Drummond told the love-story of the human race very beautifully; he said: "Love is love, and has always been love, and has never been anything lower. Whence, then, came it? If neither the Husband nor the Wife bestowed this gift upon the world, Who did? It was A Little Child."[1]

That love is love, and has always been love, is true, as also a further remark of Professor Drummond, "it is not the result of sex relationship," but he has selected savage man and savage woman for his hero and heroine, having the forest and the wilds for their homeless, wandering life, rather than seeking the gentle, pensive, innocent, guileless pair in the sunny fruit regions of the sub-tropics. The love-story of the human race does not begin with savage man, nor with his child, although love by sense became greatly perfected and vastly developed by the human progeny.

It is extremely difficult to account for the change from the clinging activity and quickly developed instincts of self-preservation as seen in the young of

[1] *Ascent of Man*, p. 391.

the apes to-day to that of the indifferent and quiescent and helpless behaviour of the human babe, if it is contended that man has gradually developed from athletic and savage progenitors; but if it is assumed, as it is in this chapter, that the ancestors of man were gentle, loving and docile before the cognitive faculties were established, then it is not difficult to realise how the mother took to nursing the baby progenitor, and how the clinging muscles were less used, and the instincts of self-preservation less developed as fear of enemies decreased through geographical and other protection. The strange rapture and love resulting from close companionship would be intensified by nursing the progeny, and so love by sense grew greatly and became perfected in the human breast. But, strangely enough, love by sense-experience—human love in its beginnings—manifested itself as the love of being for being in companionship. It was *brotherly love*—not sexual relationship—and it began low down in the animal scale.

It has been stated already that it was the joy resulting from companionship which caused the ancestors of man to pair for life, and it was practice in intuitive love and pensive habits which led to the development of the finer qualities of gentleness, docility and love. As the feeling due to close companionship intensified by experience until the

once pleasant sensation became a rapture akin to that enjoyed by holy persons in their religious devotions, they desired, above all, that this rapturous, ecstatic condition should continue, and love of companionship, of being for being, was thus perfected, although it was simply *intuitive love.* The door of correspondence with all the sense faculties could now, however, be unlocked, because the key—*Love*—was in their possession.

This rapturous, ecstatic feeling experienced before the cognitive faculties were developed, was none other than religion in the intuitive stage—it was communion with God, for God is Love.

According to Wallace, man, probably, had his primeval home in central Asia, and it is certain that if he passed through such an inactive and restful condition as has been described, food must have been abundant and clothes unnecessary. At first thought, this docile condition and gentle demeanour would be fatal to the survival of the human family. Wild animals would attack them, and extermination would soon result. The ancestors of man might have lived where wild animals seldom intruded, but this answer is, probably, not the true solution of the difficulty, for that lies in the fact that Nature never educates in any *intuitive faculty* without calculating the cost, and making provision for all contingencies. It is probable

that the ancestors of man, in their gentle, innocent condition, had little to fear from animals other than those of their own order, by reason of their arboreal habits, and what appears, at first sight, as the weakest link in the argument for the survival of a gentle human family is, in reality, the strongest link in the chain. There is no instinct ingrained more deeply upon either the human or animal nature than that of sympathy and protection for the helpless young (not habitually used as food by the species), or for a gentle, innocent or diminutive order, and if these go up fearlessly and confidingly to others of its kind, or even to others of another species, all desire to attack, or show fight, disappears, as manifested by adult animals not unfrequently running away, as if impelled by fear, from the helpless young seeking its mother. Turning to man, it is proverbial that if a kitten rubs against his legs it wins both his love and protection. And it is not only towards the kitten but towards children and all weak animals his protecting instincts are aroused, and this protection of the gentle weakling is a *strong instinct common to the race.* No one who has observed a number of animals of the ape family placed in a cage together, as in the Zoo, especially when some of these were agile and full of animal spirits, and others gentle, docile and innocent, but must have noticed what a strangely charmed and

protected life the harmless weaklings enjoy. It is not at all uncommon to find the gentle species petted and nursed by their brawny, stalwart and otherwise rough companions, but they are never ill-used. Nature suggested that the weak should be protected if gentle and docile—this was *intuitive suggestion* determining the "survival of the fittest"—not the fittest of the Evolutionist, strength of body, fleetness of limb and quickness of observation, but the fittest to survive, the exponents of goodness, gentleness, peace, thus furnishing the factor other than "fear" necessary to the formation of the Moral Sense which was to be evolved in succeeding ages.

It was through love becoming infused and fixed in the human breast that every desire was fulfilled. Love, we are told, is the greatest power in the world, and it always was. Of all the desires love is the greatest, and as the result of its expression, dominion over other creatures was laid at man's feet; and love being not only the culmination, but the "open sesame" of all desire, whatever he wanted was done.

The power to "suggest," as suggestion is only another name for "desire," was manifested "intuitively" all along the line from the germ upwards; and when the ancestors of man became gentle, and less fond of energetic life, and wished for closer companionship, they desired protection, and a strange

protecting influence shielded their lives. After love by feeling (or love by sense, as it is termed in this treatise, to distinguish it from intuitive love) was acquired, a new faculty was added to mind, a new power was linked to man's will or desire, and he himself was given the power to "suggest". At first the progenitors of man were protected and helped by *intuitive suggestion*, afterwards they were educated in *suggestion by sense*, and as suggestion by sense was the key to the fullest use of the mental powers, the cognitive faculties were formed simultaneously. For once man had the faculty and power to "suggest," he could unlock the door and hold correspondence with the region of *intuitive knowledge*, and so obtain all the knowledge he required. Knowledge of *evil* was not yet attainable, because the Moral Sense was not yet established, in consequence of *knowledge by sense* being insufficiently evolved.

It is probable that *intuitive suggestion*, as seen in the weasel and other animals, and even in insects, was as common then, when man branched off somewhere level with the ape family, as it is now; but *suggestion by sense* was not developed until love by sense had become perfected in an aminal which did not *prey upon other animals*—man being at this time a vegetarian.

Whilst practising and enjoying the rapturous,

ecstatic love feeling already mentioned, man desired that animals should not molest him, and they did not molest. The mouth of the lion was shut. The happy pair desired to know the approach of friends or foes—they knew. Nothing could harm them, they passed unscathed through every danger and lived a charmed existence. All this appears more like a fairy tale or a figment from dreamland than a sober page in Nature's handwriting of the history of the early days of the human race, but it is not so mythical as it appears at first sight. Daniel had such a power to "suggest" when the lions failed to harm him in the den. Modern animal trainers have the endowment in a lesser degree, perhaps, and these are the vestigial relics of the faculty which primeval man exercised in his gentle, innocent condition.

The historic record in the Bible says: "And God said, Let us make man in our own image, after our likeness: and let them have dominion . . ."[1] And this *dominion* was the power to "suggest," and man was said to possess it to an almost limitless extent, as seen from Gen. i. 28, "replenish the earth, and subdue it". From this record, man's power to suggest, or his dominion, was over matter as well as over the bodies of animals, and there are many vestigial relics which affirm the truth of this conclusion. When man

[1] Gen. i. 26.

required fruit from a tree, there was no need to climb for it, the expression of the desire to have it brought the fruit to his hands. Up till recently such an assertion as this had to be made with bated breath, but learned *savants* in England, France and other countries now declare that matter can be moved by the human will without the intervention of any visible mover.[1] Further researches have proved the correctness of their conclusions.

When the cognitive faculty was sufficiently established for man to *know* he had power over animals, the last link of *fear* was broken. "Perfect love casteth out fear" in more senses than one. When wild animals were brought to his feet by *suggestion*, they were observed more closely, doubtless, their signs and calls were noted, and thus it was that language began to be evolved. It is stated in Gen. ii. 19: "And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought them to Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof". Adam *suggested* the living creatures should come, and "God

[1] Professors Lodge, Sidgwick, and Richet, Mr. W. H. Myers, Dr. Ochorowicz, Dr. Notzing of Munich, and Dr. C. Ségard, Chief Medical Officer of the French Mediterranean Fleet, experimented together with Eusapia Paladino upon a little island in the Mediterranean, and were convinced of the fact (*Jl. Soc. Psychical Research*, Nov., 1894).

brought them," perhaps Genesis is not far wrong after all.

It may be asked, since "genius" is referred to in some detail in the Introduction, when did it become manifest in the human brain? Genius is the power or faculty to do a thing without effort—it is the power to acquire by expression or desire, and is included in the term "suggestion". As soon as man had suggestion by sense added to his previous endowments, all the faculties which are called genius were included. But desire must always precede the expression of a new faculty. For instance, primitive man must have noted the musical sounds of birds and animals, and desired to imitate them, before the musical faculty was established.

CHAPTER VII.

THE MORAL SENSE.

IN his latest writings embodied in "Darwin, and after Darwin," Romanes showed that Natural Selection is not the prime factor in Evolution, because without Physiological or Sex Selection it would be difficult, if not impossible, to form new species. There is even here, therefore, at the root of the matter, an "Intuitive Force" at work forming the base or foundation upon which the whole fabric of Natural Selection and of Evolution rests.

It was mentioned in the Introduction that some of the learned Naturalists of recent years could not agree that the Moral Sense had come in the ordinary processes of development, or that it could have been Evolved at all. As all the other functions of mind are found in the "intuitive" stage, it is only necessary to prove that the main principles are "intuitive" to show that the Moral Sense, like the rest, has been Evolved in the general development of the human race.

The Moral Sense is compound in its character,

differing greatly according to the position of the individual, the tribe or the nation in civilisation. The code of ethics among Christian nations is derived largely from the Bible. Among heathen tribes having no written language, and where cannibalism and other degrading practices abound, the Moral Sense is erratic as well as adapted to the customs of the tribe, and what is regarded by them as virtue is, with us, abhorred as detestable vice. Morality is not an exact science, because it is founded on the pleasures and experiences of those who too often regarded it from altogether different standpoints. Whilst much of the Moral Sense of the savage is made up of his likes and dislikes, it is evident that no Moral Sense worthy of the name could be evolved unless Nature had first laid a solid foundation upon which it was to be built, and afforded a strong bias in the right direction. The liking of one thing and the disliking another did not begin with savage man, because the root is found in "choice". It has been shown that "choice" is met with in chemical combination, and is, therefore, a function common to all matter as well as to life. Among one-cell organisms choice is found, as there are many of these which feed upon specific spores, or otherwise exercise "intuitive" choice. "Choice" may therefore be regarded as the first brick in the structure of the Moral Sense. At

the same stage of organised life, it is noteworthy that when organisms are found in water in which ample nourishment and food exist, they gorge themselves with much gluttony, and, as the result, work off the superabundant energy resulting from excessive eating in active if not violent exercise, and there is no doubt that the movements of the organisms are as much indicative of sport and pleasure as are those of the dog loosed from its chain after days of captivity. These are the first indications of pleasure, and the microscopic world of a tribe of *Infusoria* with ample food and a healthy environment exhibit one incessant round of pleasant vitality, growth and division of the species. Let the food provision cease and unhealthy conditions of the liquid supervene, there will be food-hunting movements devoid of the elasticity and agility before manifested, followed subsequently by actions which simulate pain as the species disappear and die. It is not easy to mark the transition from pleasure to pain, nor is it very clear that pain is simulated by one-cell organisms, but it has been shown that feeling existed in the intuitive stage before nerves were formed. Pleasure and pain both rest upon intuitive foundations, and these form bricks two and three in the building of the Moral Sense.

At the lowest stage of organised life it is possible to see Nature giving the first lesson in intuitive

ethics. That lesson is not, as some have supposed, in the subject of altruism or otherism, nor, as Drummond defined it, "in the struggle for the life of others".[1]

On the contrary, Nature's first lesson in ethics is given in self-preservation. It does not require much argument to prove that a savage would have no desire to preserve or perpetuate the race if he had no desire to live himself. Nature did not leave the matter to the feelings of the savage, but began to instruct, intuitively, at the beginning of organised life. As evolution progressed, Nature used intuitive feeling as the instructor, and what is termed fear in animals with nerves was aroused by intuitive knowledge to make the organism spend its utmost energy in flight to avoid capture. Those who have worked with the *Infusoria* can have no doubt that they exhibit all the characteristics of fear, as manifested by fish, or other animals which have nerves. Upon this point M. Binet is very decided. He says: "Romanes, in his zoological scale, assigns the first

[1] Drummond saw "self-sacrifice" in the division of the first cell. He said, "By giving up its life as an individual it has brought forth individuals". It has not given up its life, however, and there is no self-sacrifice at that point, but it will be seen a little higher up in the scale of life among single cell organisms when rejuvenescence becomes imperative, and not before then. If the single cell grows beyond a certain size, it gets too large to live, so it must divide or die. By dividing it proves that self-preservation is the first intuitive lesson in the struggle for eternal life.

manifestations of surprise and fear to the larvæ of insects and to the *Annelids*. We may rely upon this point, that there is not a single ciliate *Infusory* that cannot be frightened, and that does not manifest its fear by a rapid flight through the liquid of the preparation. If a drop of acetic acid be introduced beneath the glass slide, in a preparation containing quantities of Infusoria, the latter will at once be seen to flee from all directions like a flock of frightened sheep."[1]

It is at the lowest stage of organised life, too, that the second lesson in ethics is manifested. Mention has been made that the *Infusoria* when supplied with ample food and a healthy medium propagate by division of the cell into two organisms with great rapidity, and it is probable that if the conditions of the liquid remained the same, and perfectly free from poisonous products, the organisms would continue to divide and multiply for ever. But after a period of much active division, or fissiparity, as it is termed, lack of food, or unhealthy condition of the medium, leads to the gathering of the *Infusoria*, and to the process of fecundation in order to bring about the rejuvenescence of the organisms. The fusion of two cells to form one rejuvenescent cell is better seen in plant life, and the old cells yielding their lives, so to

[1] *Psychic Life of Micro-organisms*, p. 6.

speak, for the benefit of the race is the *intuitive stage of self-sacrifice.*

When a number of cells combine to form a multi-cell-animal, the unity and general working of these cells towards the perfect concord and development of the whole is another ethical lesson, and this fact is pointed out by Carus in his *Soul of Man.* He says: "The law of specialisation, which makes the parts of an organism work with and for each other, is the fundamental condition of all higher evolution of life. Organised life, therefore, with all the varied spiritual treasures that it has created, ultimately depends upon a moral condition; it depends upon the condition that the individual earnestly devotes all its life and efforts to the service of the greater whole to which it belongs. Or shall we not rather state the fact in its inverted and more natural order? Because the devotion of the work of every part to the life of the whole is the condition of all evolution and of all progress, therefore it is ethical. Ethics is no creation of our mind. Being a code of rules for our conduct, it must stand on facts. The facts that have produced man are the data from which the rules of our conduct must be derived. If ethics were a human invention, it would be a mere fancy of our imagination."[1]

Carus, like Drummond, regards Nature as moral,

[1] *Soul of Man*, p. 70.

because all our progress is based upon a moral condition. This is perfectly true: Nature is moral, Nature is ethical. Drummond's *Ascent of Man* gave rise to much adverse criticism. Dr. Dallinger and others contended that Drummond painted Nature with too much *couleur de rose*, maintaining that Nature was most unmoral. The ravages of the ichneumon fly upon grubs and caterpillars, and the chrysalides of various moths and butterflies, were instanced, and no lack of evidence exists that among the lower animals and insects Nature is one vast charnel house. Without a doubt, Nature is unmoral. Nature is, therefore, both moral and unmoral—can a "kingdom divided against itself stand"? Yes, provided one part is the stronger and destined to survive. The moral and unmoral are only terms for good and evil, and however mysterious these appear in human experience—and they lose none of their mystery when it is discovered that they existed long before man made his appearance upon the earth—the fact remains that these two forces have warred an incessant warfare since the first beginnings of organised life. It has been noticed already that evil, like the ethical and the good, existed in the intuitive stage, and it is beside the mark to try and prove that Nature is not moral in some things because she is unmoral in others. If the desire to live—self-preservation—occurred among

men first, and self-sacrifice for the benefit of the race was human in its conception, then the awful ravages of parasites like the ichneumon fly would stamp Nature as more degraded and unmoral than the worst of the savage tribes. But where is there such a struggle for the life of others and for the progress and life of the species shown as in the case of the lepidoptera? and is it not a fact that where the greatest ravages are made by enemies upon a species the harder does that species struggle to survive? What is more noble and brave and self-sacrificing from a moral and human point of view than the action of the parent moths, which live but a few days and in them drain their life energy to produce so many of their kind that some shall escape to perpetuate the race? And examples of this kind are not wanting higher in the animal scale. It is but the struggle of right against might in the intuitive stage.

It may be argued that Nature is alike responsible for this parasitism and also for this sad waste of organised life. That may be the case, but what concerns us at this moment is the fact that there are *intuitive ethics* as well as *intuitive evil*, and that the Moral Sense is not a human invention, but, like all the other functions, is based or founded upon intuitive principles.

Among animals in which the senses are in process

of formation, nothing is more apparent than the pain which is experienced in the earlier stages of their development. At first sight the reason for this is not easy to find, but undoubtedly it is part of the education, so far as feeling is concerned, in self-preservation. A dangerous touch is made a sore touch so that the fullest energy may be put forth in flight. And all sore feeling in the nerves of the other senses was intended, primarily, to arouse strong fear as an indication of danger. The result of this education is clearly seen in the herbivora, which use their sense of smell to arouse intuitive knowledge. When a cow grazes in the midst of edible and poisonous herbs, she acts, as a learned divine facetiously remarked, "by chewing the one and eschewing the other". The writer saw a large number of oxen stray into a young plantation in which were numerous and very varied poisonous evergreen shrubs. They moved between the trees for a few moments the hair on their withers rising, then fear was depicted upon every face, and by common consent, they rushed upon the trees, horning them furiously, as if fighting with an enemy for life, the result being that some of the more poisonous trees were damaged irreparably. A homing pigeon let go miles from home rises in the air and flies a little around to feel its wings, and when the desire for home is expressed, intuitive

knowledge is aroused, and the bird flies in the right direction. And when a cow comes across herbs which it does not recognise by sight, it smells to arouse intuitive knowledge. If the plants are not edible, a fear feeling is experienced, the consequence being that any portion taken in the mouth is rejected, and if none has been bitten, the animal moves away to graze elsewhere.

It is a mistake to assume, as many writers have done, that the knowledge of enemies, poisonous plants, etc., is learned by experience.

Romanes not only dealt with this question in *Mental Evolution in Animals*, but he gathered much evidence from trustworthy sources to prove that those instincts necessary for the preservation of the life of an animal are ready formed and hereditary in the young of the species, and are not gained as the result of experience. In all cases, however, when a young animal shows instinctively that it has discovered danger, fear is manifested, and is an invariable accompaniment.

These facts only prove that Nature was occupied up to this point chiefly in training animals to preserve life, and the Moral Sense would have but a one-sided foundation were it based upon fear only. Hence it was most essential that Nature should institute an *intuitive* stage in love, gentleness and goodness, and

if the ancestors of man had not been practised in the intuitive stage in these virtues for ages, so as to make them fixed habits or instincts, it is difficult to see how the Moral Sense could ever have been perfected by evolution afterwards.

It is easy to raise objection here, and to contend that a gentle, lovable, human family, possessed of suggestion power, would so far have conquered fear that one of the requisite factors would be absent, practically, because fear is most necessary to the formation of the Moral Sense. It may be urged, too, that the Moral Sense could never be developed in animals so practised in love feeling that fear was almost lost. The latter objection is quite sound in principle, for had the ancestors of man been content to act upon intuitive knowledge and abide by it, it is evident that the Moral Sense could never have been established, for the simple reason that no sense of sin would be possible; whilst an ever-growing and fuller love feeling would lead to higher spiritual developments. But whilst the evolution of the cognitive faculties and of suggestion revealed to primitive man that he had no reason to fear wild animals, it was only necessary to lose the faculty to *suggest*, to bring up that fear which was still a vestigial relic, and a faculty which could still be aroused in other directions.

It has been surmised, already, that at the time under consideration man was a vegetarian, and had not begun carnivorous habits. When he began to use his recently acquired reasoning powers, the intuitive capacities common to the animal experiences of his progenitors would be most serviceable, and, as in the case of the herbivora just mentioned, *fear* was still the intuitive indicator of the poisonous qualities of seeds, fruits and vegetables not fit for food. It is not difficult to infer, however, that after the reasoning faculty in man had been some time exercised, his attention would be turned to the fruits which Nature had reserved by reason of their poisonous qualities, and which were very pleasing and tempting in appearance, and the thought would be expressed if not voiced in language "why cannot we eat these?" It is not unreasonable to believe that a time would come when the experiment would be tried, and they would taste and eat. Then fear—the intuitive indicator of the poisonous—caused an awful dread to follow the experiment, and to those versed in love feeling only, the fear feeling must have been intensified and baneful. The possession of the faculty to suggest would hinder death resulting at the time, because self-preservation would arouse suggestion and prevent this, but the penalty of great pain would have to be paid, as the reasoning faculty would not be developed

sufficiently for man to be aware of what was amiss, and to suggest that the pain should cease. In other words, there was a clashing between the intuitive and the sense faculties, which sooner or later must be developed in other directions as well, since we know for certain now that all the intuitive faculties were destined to become sense faculties. Evil, having been present from the dawn of organised life—if not much earlier in point of time—in the intuitive stage, seemed destined to become developed in the sense condition, and it is not easy to see how this could be obviated, as it appears to have been the plan adopted by the First Cause.

The possession of the faculty to suggest eventually led to the fall or decadence of the intuitive faculties, and to the substitution of the sense faculties in their place, and the confounding of inherited instincts and intuitive faculties which supervened led to the dispersion of some of the human family, whilst sex selection sooner or later caused further separation. When this occurred, suggestion would be exercised adversely by the head of each family in order to maintain his dominance, and keep his wife to himself, and before many generations had passed away the power to suggest would be centred in the head of the family, who, reserving the right to himself, caused it to lapse in other members. Thus suggestion by

sense would be used for evil as well as for good, and the head of one family would suggest that the head of another should not be as powerful as he, the result being that when tribes were formed by the increase of the human race, much the same thing occurred as is found among uncivilised tribes to-day, where the medicine man and the head of the tribe possess the suggestion power.

Pain and fear soon made their re-appearance after the first disobedience to intuitive knowledge, and this indicator for the Moral Sense would be revived all too certainly and well when the pairing season was not observed and other irregularities supervened. The intuitive instincts of self-preservation remained intact, and the previous education in love feeling saved the race from absolute retrogression, whilst the retention of some suggestion power in the family and in the tribe paved the way for man to rise to a higher level in sense knowledge. Thus it was that suggestion, which occurs so seldom and so fitfully as a distinct function to-day, was instituted, and soon became almost lost after it was used for evil as well as for good. But whilst the power to suggest led to the downfall of the intuitive faculties, it also furnished the means for the Moral Sense to advance. It led to the downfall of the intuitive faculties because it permitted man to transgress against intuitive knowledge and

yet live. It led to the advance of the Moral Sense because it enabled the few who possessed it to control the many.

The part that the previous education in love feeling played in the formation of the Moral Sense is not difficult to trace. The head of a family, knowing how pleasurable and enjoyable it was to be loved and adored, for self-sake, suggested that the family should love him and be obedient. Desiring his own wife as his exclusive property led to his making this a law for all. When the family became a tribe the chief would exercise his suggestion power with a view that all should love and reverence him, and through these inter-tribal relations the Moral Sense made considerable progress. All the races retained and practised suggestion in some form, and as knowledge increased the seers and prophets in them had more or less correspondence with the intuitive region of all knowledge. Those who desired to progress in the right direction received those revelations in ethical knowledge which led to a higher development. The Jewish race retained much suggestion power for centuries, and now and again men possessing great intuitive capacity wrote their visions and revelations, with the result that the Moral Sense was greatly benefited and improved.

Primitive man thus rose to a point of excellence in the intuitive faculties until the influence of evil made

its presence felt in the sense condition of the cognitive powers. This was, indeed, a fall; but having long since touched bottom, he is again ascending the ladder, being educated still in the sense faculties, although rising ever nearer and nearer to the intuitive, which one day will be again resumed when his education shall have been perfected, and then the sense faculties will, in turn, see their decadence, and the intuitive capacities shall be "all in all".

When that time shall arrive, evil in both stages will have been subdued, and good—the fittest—will survive.

CHAPTER VIII.

THE INTUITIVE FUNCTIONS AS INDICATORS OF THE COMING TIME.

IT has been shown that the intuitive functions common to the inorganic world are mostly present with equal prominence in the organic realm, and it will not be necessary, therefore, to go back prior to life being manifest on this planet, because it might be contended that none of the functions common to inorganic matter not already existing in organised matter are ever likely to enter this region in the future.

Taking protoplasm as the basis of life—the material with which life is bound up though life is something distinct from it—the four elements carbon, hydrogen, oxygen. and nitrogen, which form the main ingredients, combine chemically with the same exactness as to quantity, and with the same unerring certainty in forming organised compounds as they did prior to the appearance of life. When the first cell divided into two parts, this division became sure and exact and simple, and cells always divide thus. When cells became double by the union of two such cells,

the two cells in dividing became four, and, among microscopic life, there are numerous plants which divide and form two, four, eight or sixteen cells with unerring regularity. Whilst Nature has allowed a slight variation in form to permit the making of new species, and aid in the general development, still, there is an accuracy in the form of microscopic cells which shows great precision, and, as long as the intuitive functions are in the ascendant, this exactness is manifest all along the line. It is only when the conditions of a pond show that life is rendered difficult and impossible, and death occurs through such conditions, that some seeming irregularities are noticed. These irregularities are more and more discernible as the higher species are reached, and the ravages of disease and death have greatly hidden and prevented the exactitude of form and action which might otherwise have been more apparent. This is especially the case with those intuitive functions such as digestion and the nutrition of the body and the general action of the heating apparatus. The mind of the higher animals is so closely associated with the body that when the many ills which flesh is heir to attack the body, the perfection of the law of continuity, whether it be memory of the brain or nerve memory, becomes overclouded or disorganised.

Were it not a fact that some correspondence has been granted by Nature to birds and animals, possessing sense functions, with the region of exact figures and knowledge, with which chemical combination is associated, one might almost despair that perfect correspondence will ever be established between man and that realm. It is generally admitted by those who believe in a future state, that after death there will be such correspondence, and the words of Paul[1] are to the point in this respect: "For now we see in a mirror, darkly; but then face to face: now I know in part; but then shall I know even as also I have been known".[2]

Paul was thinking of the future, when his spirit would have joined the majority; but the question which demands consideration now is: "Will the human race in future ages ever attain this knowledge upon earth?" Paul knew it would not in his time, and he looked beyond the veil for such a consummation; but there is no reason to doubt that the time will come when such a correspondence will be attained, and such knowledge open, although the day is far from being in sight yet. Isaiah seemed to catch a glimpse

[1] 1 Cor. xiii.

[2] The Twentieth Century New Testament, Part 2, translates this paragraph thus: "As yet we see things dimly reflected in a mirror, but then—face to face! As yet my knowledge is incomplete, but then it will be as full as God's knowledge of me is now."

of the far-off time, and Peter, in later days, said: "But, according to His promise, we look for new Heavens and a new earth, wherein dwelleth righteousness".[1] It may be assumed, too, that Paul had such a vision of the future when he said: "For the creation was subjected to vanity, not of its own will, but by reason of Him who subjected it, in hope that the creation itself also shall be delivered from the bondage of corruption into the liberty of the glory of the children of God".[2]

But it is not revelation which is under consideration, else much more might be adduced. There are exact quantities, exact figures, exact knowledge of position and distance, exact memory, and many other things visible in the lowest creatures and at the very dawn of life. When animals which have nerves are reached the intuitive functions still form the base of the sense functions, and intuitive mathematics shows itself again and again. But it is the fact that prophets, seers and men of genius have had the door of correspondence open to sense, and that great mathematicians, poets, musicians and others have been so favoured, however imperfectly, dimly and incompletely; it is this which makes it sure and certain that the day will come when the race will attain to such correspondence. Is it not a fact that exactitude in the production and

[1] 2 Peter iii. 13. [2] Rom. viii. 20, 21.

works of civilised nations is the standard of progress? and, in commerce as a whole, it is the most perfect which survives. As the desire for accuracy of work in every department increases—and there is no gainsaying the fact that such desire has existed strongly during the past twenty-five years—Nature will more and more open the door of correspondence with the region of exact knowledge.

One of the strongest evidences in favour of the view expressed is, perhaps, the general acceptance of the fact that man is evolved and developed from the primordial living cell. That this development is still going on, and that it is going on at a very rapid pace, will be admitted quite as generally, and the only question which requires much consideration is, "Where is that development to cease?" Are there any signs of its coming to an end, or any reason to expect that this planet will soon be dissolved? The answer is—there are none which give us any reliable indication that the end will be for countless ages. This being so, and in face of the undeniable evidence of the progression of the race at a greatly enhanced rate, we are led to assume with reason, if not with certainty, that the time will come when the knowledge of things, past and present and future, will be of the intuitive kind, and be perfect and exact, in consequence of the race being able to correspond with the mathematical

region—the region where all knowledge is stored. It may be interesting for a moment to notice how this will be achieved. It is "suggestion" which will exercise the strongest influence in bringing this about. When the great selfishness of the race, and the greed for wealth, position and affluence, at the expense of the other portion of the community, has gradually passed away, as it is passing, though slowly, and true socialism becomes more and more manifest, then the suggestion power which is now used upon the race-course, the stock exchange, and in various other directions for selfish ends will become more generally devoted to the well-being of the race. The vast power and use of suggestion toward development will be seen, and appreciated and desired, with the result that each succeeding generation will have enhanced psychic power, because Nature always gives the faculty where the desire exists. It will then be no longer necessary to store up a library of the printed records of the past, as the *seers* of the day will be able to call up the scenes of long ago and show them by suggestion, just as lantern pictures are thrown upon the screen to-day. The voice of those long gone across the border will be heard by the audience, and Shakespeare will live once more before the people of future ages. Voices from the past can be reproduced to-day not only from the phonograph,

but by the power of suggestion. As age succeeds age, the power of suggestion will become more general, and the race will be able to see things—as a limited few to-day can by what is now termed the clairvoyant faculty—as they were in bygone ages, as they will be at the time, and as they will be in the distant future. Then there will be no necessity to burden the organism with ten ounces of brain matter to form wires of correspondence with stored memories, and the books and records of our day, and those of times farther back in the historic past, will doubtless be regarded much in the same light as we view the clay cylinders of the ancients. To those who shall live in that period matter will be as transparent to the psychic vision as glass is to the sunshine, and knowledge, perfect and exact, will be visible at a glance to the sight which can penetrate into Nature's secrets without research, and without anxiety or trouble.

Life.—Perhaps it will be as well to consider some points relating to life at this stage, exact knowledge and the mathematical faculty being considered first, because they are found in the inorganic realm. We have before referred to all Nature being alive, and this is so, but the *intuitive* character of that life is so evident that it can be passed over without much comment. The life of the inorganic is the life of the Eternal Spirit, of the "All-Soul" of the Universe.

It has been shown how the sentient life of the animal creation has been founded on intuitive life; but it will be as well to consider the lowest animal cell for a little, in order to see what life is like at this point, because it has been noticed, already, that what any *intuitive faculty* is at the start, so likewise will the sentient faculty be, and the lines along which an intuitive function unfolded are the lines along which the sentient function will unfold, until the sentient functions fade away and the intuitive functions again take precedence, and become all in all. It is interesting to note generally that the *Amœba* knows what is food and what is sand, and that it has some knowledge of position; but a fact of far greater importance connected with these micro-organisms is that, correctly speaking, there is no death among them. The pond may dry up and the conditions be such that the micro-organisms are destroyed, but death, as it is known in the higher animals, is here unknown. A man or a lion might have unlimited food and all the necessities of life in abundance, but this would not prevent senile decay coming sooner or later. There is no senile decay among the *Amœba*, and, if they have a pond with unlimited food and the other necessaries of life, there is no doubt whatever that they would continue to live indefinitely. Thus we see that life at first—intuitive organised life—is

of the everlasting type. This is a fact of great importance, and of great interest also, and it will become apparent to any one who can realise that all knowledge will be one day opened to the human race on earth, that life, also, will be open and be eventually everlasting. Nor will it be difficult to understand, once the truth has been grasped that Jesus Christ had the power over death, that the souls of those who believe in His resurrection power will live again when the intuitive functions will have been resumed. Indeed, it becomes evident that as soon as the race has lost its selfishness, and the love of the race is predominant in the coming time, the spirits of those who have done their best to forward the progress of the race in the ages long ago will be awaked and called into being by the "suggestion" power of the race which has conquered death. It is the teaching and power of the Spirit of Jesus of Nazareth which will accomplish this, whether it will be manifest only through the race, or whether He will accomplish it personally. It may be interesting to note some of the influences at work which are even now hastening the time when patriarchal, and, eventually, everlasting life will be attained. Going back for a moment to the theory advocated in these pages that the ancestors of man were gentle and docile, it was noted that the pensiveness, though *intuitive pensiveness*, and love ex-

hibited and enjoyed by the pair who sat side by side led to less food being eaten and to progeny being less frequently born. It was pointed out, too, that this rapturous ecstatic condition was so enjoyable that the great desire was that it should continue, and, as the result, life would be more and more prolonged.

As long as the children paired off, and went farther afield, this lengthening of life would continue, whilst the power of suggestion they then enjoyed and practised would largely help to make life of longer duration.

This point was not mentioned before, because it had not much bearing on the evolution of the senses; but it may be mentioned here that the annals we have handed down from the cradle of the race refer to men living at the beginning lives of great duration. Some may think that the records as we find them in Genesis are fables, or myths—with that I will not deal—but be they tradition, or whatever else it is concluded they are, depend upon it there is an element of truth in them. If this proves anything, it is admitted that it only proves how suggestion can determine longevity, and this is all that is claimed. As the power of suggestion is so linked and interwoven in all the progress of the race, whether in knowledge, in longevity, in rightness, in socialism, in overcoming disease, etc., it is interesting to note what

medical authorities think of suggestion as a *curative* agency. When some specialists were asked what the new century was to evolve in the path of progress in medical science, the extended use of "suggestion," or so called "hypnotism," was regarded as one of the chief agents. Undoubtedly disease will gradually but surely disappear under its power, and when it is remembered that nothing is lost, that the powers once possessed are still at the disposal of mankind, and that the power of suggestion increases and grows by continued use and practice, it is evident that suggestion is to play a great part in the healing of the body, and in bringing it once again to its pristine rejuvenescence, and eventually to the rejuvenescence of the *Amœba* type.

Looking at facts as they appear to-day, we note two things which will tend greatly to prolong life:—

(1) The rapid decrease in the birth-rate during the last thirty years. Sir William Crookes at the British Association's meeting in Bristol referred to the difficulty which would occur near the middle of this century in obtaining sufficient bread for the vast multitude of population which would then exist. Nature is quite equal to the occasion, apparently, and, judging from the rapid decrease in the birth-rate in America, on the continent of Europe, and greatest of all among ourselves in Great Britain, there need be

no fear that the world will be overpeopled in the coming time. What will occur, apparently, is that which has already happened in France—the birth-rate will fall to the death-rate, and very likely for some ages below it—perhaps far below it. This will give a general security and feeling of plenty in the minds of the people of European nations first, and then of all others, with the result that the struggle for life will become far less severe, and the period of life will be augmented by leaps and bounds. It may be admitted, readily, that our better sanitary conditions have done much to lengthen life, but, whilst admitting this, it must not be forgotten that the general exodus which has taken place during the past half-century from the country to the towns, and the great over-crowding which has occurred in so many large cities, have tended greatly to shorten life, and had it not been for the influence which the decreased birth-rate has exerted upon the greater longevity of the people, it is not at all likely that the average duration of life among the people of these isles would have risen so greatly as was the case during the last fifty years of the past century. As the birth-rate continues to dwindle, as dwindle it will, during the present century, the average duration of life will increase in even a greater ratio; as the conditions of man's prosperity and living under less stress and difficulty become manifest,

the desire to live and enjoy life will be more general among all peoples. It is a fact, and one now more realised than heretofore, that those who *desire to live* are those who live the longest; and once remove the struggle which overpopulation and overcrowding engenders, then the desire to live will increase proportionately, and the average duration also.

(2) The second influence which is at work vitally at the present time in furthering longevity is the progress of true socialism, and it does not need much explanation to make this apparent. The question of the hour for County Council candidates, and the one great problem they undertake to solve is, the better housing of the poor. Never was there a time when as many agencies were at work to better their conditions, morally and spiritually; never was there a time when the weaklings of the race were fostered with such unflinching and studied care. The one cry in the churches is "the working man!" how can we reach him? what can we do for him? The sympathy of the nation is for the down-trodden and the poor, and sweating, though alas it still exists, is looked upon as abhorrent and criminal. What does all this mean? Better conditions, longer life most certainly, and when the fruit comes from the present blossom upon the socialistic tree, then nothing will more tend to hasten eternal life than this: "If ye love Me, keep

My commandments." "As I have loved you, love one another." For He must reign until He hath put all enemies under His feet. The last enemy that shall be destroyed is "*death*". When that is destroyed, everlasting life will be the happy consummation.

Socialism.—Before dealing further with socialism, it may be well to see whether there is an intuitive function among the lowest organisms which seems to point out that socialism will one day be the order of the nations and of the race. It may be argued that the combination of two cells in one economy is a socialistic indication, and when the number is increased indefinitely, as in the *algæ* and other plants, this is still more manifest. But in many of these plants, while the rejuvenescence of the cells requires the coalition of two, which perhaps may be for the time being merged into one, there is much individuality about each cell, notwithstanding the close aggregation of the whole. A number of cells joined together by their outer walls may be united, and, to a certain extent, socialistic, but this intuitive socialism in the sense condition is more nearly represented by the gregarious flocks and herds which congregate more for safety and mutual protection than because each unit is a necessary part of the whole which would be incomplete without it. We have not to go

far, however, in the field of natural history to see that Nature has afforded us most exact prototypes of intuitive socialism, from which it is not difficult to discover what the human race will be in the coming time.

Some of *Hydrozoa* have cells which do little except float the mass; others are food purveyors, others reproduce the species, and even here each member of the series is necessary for the well-being and doing of the whole, while no cell or group of cells can live without being attached to the mass, excepting those sprouts or shoots which are the reproductive offspring destined to furnish new colonies. Even with such examples as these, however, socialistic as the colonies are undoubtedly, the parallel between them and the human race is lacking in this—that all the cells are joined together, and the life-blood of the one cell is the life-blood of all alike.

The human race consists of units, each capable of living alone and independent of the others. Still Nature has not left us without examples of intuitive socialism where the colony consists of units which are free and complete individuals. The beehive is such a colony, but the ants furnish the best example. The sense functions of these insects are not well developed, excepting that of feeling; hence it is that whatever the ants teach us of the possibility of a

community living together, the lesson is not one worked out by the sense faculties, but is without doubt Nature's own development, and an example of intuitive socialism.

It is unnecessary to dwell further upon Intuitive Socialism, as few doubt that socialism will be established among nations before the sense functions fade away altogether, and before a higher and more spiritual development entirely displaces them. The nationalisation of railways in one country, of telegraphs in another, the formation of huge trusts and companies, the trade combinations of men and masters, are sure indications of what is coming. The outlook of the struggle that ten years ago seemed so imminent between labour and capital does not present so formidable and hopeless an appearance to-day; and although it seems certain that the question is one which will give rise to much unrest and even serious trials, perhaps, in the future, the more general adoption of co-operation in business ventures, and the warmer and more general altruism which is so prevalent, the hopeful sign of our times, will tend much to heal the grievances among the working classes whilst the levelling up of society is in progress.

How the question of land will be settled—whether it ever will be nationalised—is a matter which time

will work out, but the difficulties of the farmer will be overcome much more easily when the forces of Nature can be harnessed. When the day comes—as come it will—for the enormous forces in the ether to be used in the tillage of the soil, the appearance of the land and the crops will be different indeed. The thirty-fold will become sixty, and the sixty a hundred-fold.

Suggestion will not be confined to the healing of disease, and the higher development of the human race, morally and spiritually, for the vegetable and the animal creation will come under its sway. Once let the love of the race and the decadence of selfism be established, then the face of Nature will receive attention. Suggestion will destroy noxious weeds and vermin, plants will grow as they never grew before, and those individuals will till the soil and produce the food of the nation who have the natural genius and suggestion power best adapted to this end. It may be that "the desert shall rejoice, and blossom as the rose,"[1] and this saying shall be something more than the poetry of the Prophet, and the face of Nature shall wear a dress of infinite beauty and attractiveness yet in the days that are to be.

Nor is this all, for the animal creation will be

[1] Isa. xxxv. 1.

brought under the sway of the human family and be completely subject to it. The remarkable displays witnessed with wild animals, lions, tigers and bears performing together and regulated and controlled by the "suggestion" of the trainer, give us a glimpse of what shall be.

These conclusions lead to further thoughts about the tame animals used for food to-day. Referring back for a moment to the early historic or traditional records of the race, it seems clear from the earliest that man was primally a vegetarian. The trend of the times points to his becoming so again at a not very distant date. The strong and powerful teeth of the cave men, so necessary for tearing the flesh of animals, have no counterpart in those of to-day, and the thought of killing animals for the purpose of food is much more repugnant now than it ever was in the past. Science will come to the aid of those living in the near future to provide food material which shall be self-digestive, and the vegetable kingdom alone will supply all that will be required. Will food be necessary in the coming time? is a question that might well be asked. It is known that if the sources which provide brain and bodily nourishment are not called upon, life can be prolonged with very little expenditure of bodily material, or waste of tissue, as is shown in the case of those animals which hibernate.

It is known, too, that by the aid of "suggestion" men can fast for more than forty days.

Once let the force—this psychic force—become general in the race to sustain, strengthen, and eventually supplant muscular power, less and less food will be necessary; and although the day may be far distant—very far distant—the resurrection body of Jesus Christ, which could become material so as to have "flesh and bone," and to eat food, or less material, and do without, suggests that one day the race will attain to this perfection, and flesh and blood will be things of the past.

Telepathy.—The possibilities of wireless telegraphy are becoming certainties at a rapid pace, and it would not give rise to much wonder if the next few years saw the installation of an apparatus which rendered the system perfect to hold communication between London and New York. It is equally possible by the use of psychic force to communicate at a distance between the mind of one person and another, and it is in this direction that the greatest interest and importance should be attached. Until the love of the race has stamped out selfism, it is not probable that telepathy will become a general faculty. The thought of the human mind being a more or less open book is not a comfortable realisation to the man who would dominate society, and make his fortune

by using purely secret methods of his own. That it is to become a faculty common to the race is certain, but the time is not yet.

Intuitive Motion.—Mention has been made already that there is an intuitive force in Nature which one day will be used by the race. It is only one of the many functions which will be developed as the power of suggestion becomes a more general endowment. Lytton had witnessed so many exhibitions of this power in the movement of living matter that he embodied its possibilities in his *Coming Race.* The force which gave all the power of motion, as well as all else which was the result of "suggestion," he styled *vril.* Those who have witnessed the movement of the human body without the use of muscular force have called this movement *levitation.* It matters little what the force is called, suffice it to know that matter can be moved by the suggestion of the human will, and that the human body can be so moved. It is not unlikely that muscular force will be employed at first to assist the suggestion power that is too weak to do much, and that wings will be tried as an auxiliary; but Philip, after he left the Eunuch in his journey to Azotus, had no wings, showing that the expression of the human will can bridge the distance and land the passenger at his destination. It would be a strange sight, indeed,

to see the business men of the London City after the day's work was done soaring above the smoke and din to seek their homes in the country, but such a consummation as this is within the range of probable realisation. Flying machines have passed beyond the stage of experiment, and there is no telling how soon some may be perfected. But it is the desire to achieve such a result which is the chief point to be noticed. Let the desire gain a hold upon the human mind and Nature will be sure to gratify it; and whilst much practical good for the community may not result from our attempts at aerial navigation, it will be sure to bring into play the latent psychic force which will eventually make aerial navigation without gas or oil motors *un fait accompli.*

If what has been foreshadowed in this chapter is likely to come to pass, and the intuitive functions in organised matter point to such a consummation, it is evident that the race has a high mountain yet to climb, and no limit can be set to the altitude to which man will eventually ascend. Perfect socialism, perfect knowledge, perfect motion, overcoming time and space and distance, eternal life—these are amazing enough for present contemplation, and yet there may be infinite heights beyond.

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Shri Brihad Bhartiya Samaj
on 11 March, 2020